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PROPOSED PLAN OF OPERATIONS -

LISBON VALLEY PROJECT

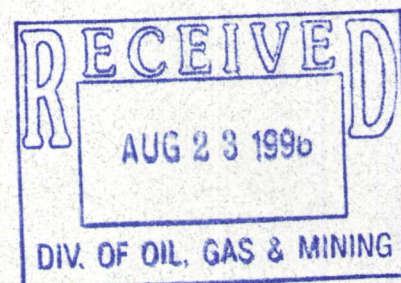
*Prepared for
U.S. Department of Interior, Bureau of Land Management, Moab District,
Grande Resource Area*

*by
Summo USA Corporation*

August 8, 1995

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1.0 GENERAL INTRODUCTION

Summo USA Corporation (Summo) a subsidiary of Summo Minerals Corporation, is proposing to conduct an open pit mining, heap leach copper operation at its Lisbon Valley Project. Open pit mining will occur at four pits over the life of the operation. These pits are called the Centennial, Sentinel #1, Sentinel #2, and GTO. Mining has occurred in these areas in the past. The project is located approximately 18 miles southeast of La Sal, Utah, in San Juan County (Figure 1-1).

The proposed project is located on private (fee) land, state leases, and unpatented mining claims. A land map of the area is provided for in Figure 1-2. The unpatented mining claims are administered by the Bureau of Land Management (BLM), Moab District, Grand Resource Area. Because unpatented mining claims on BLM lands are a part of this proposed project, Summo must comply with the requirements of 43 CFR 3809 by submitting a detailed Plan of Operations (POO) to the BLM for review and consideration. Summo will comply with the BLM regulations governing surface mining under these general mining laws.

The Lisbon Valley Project area (boundary) will encompass all or parts of :

Sections 22, 23, 24, 25, 26, 27, 34, 35, 36; Township 30 South, Range 25 East

Sections 1, 2; Township 31 South, Range 25 East

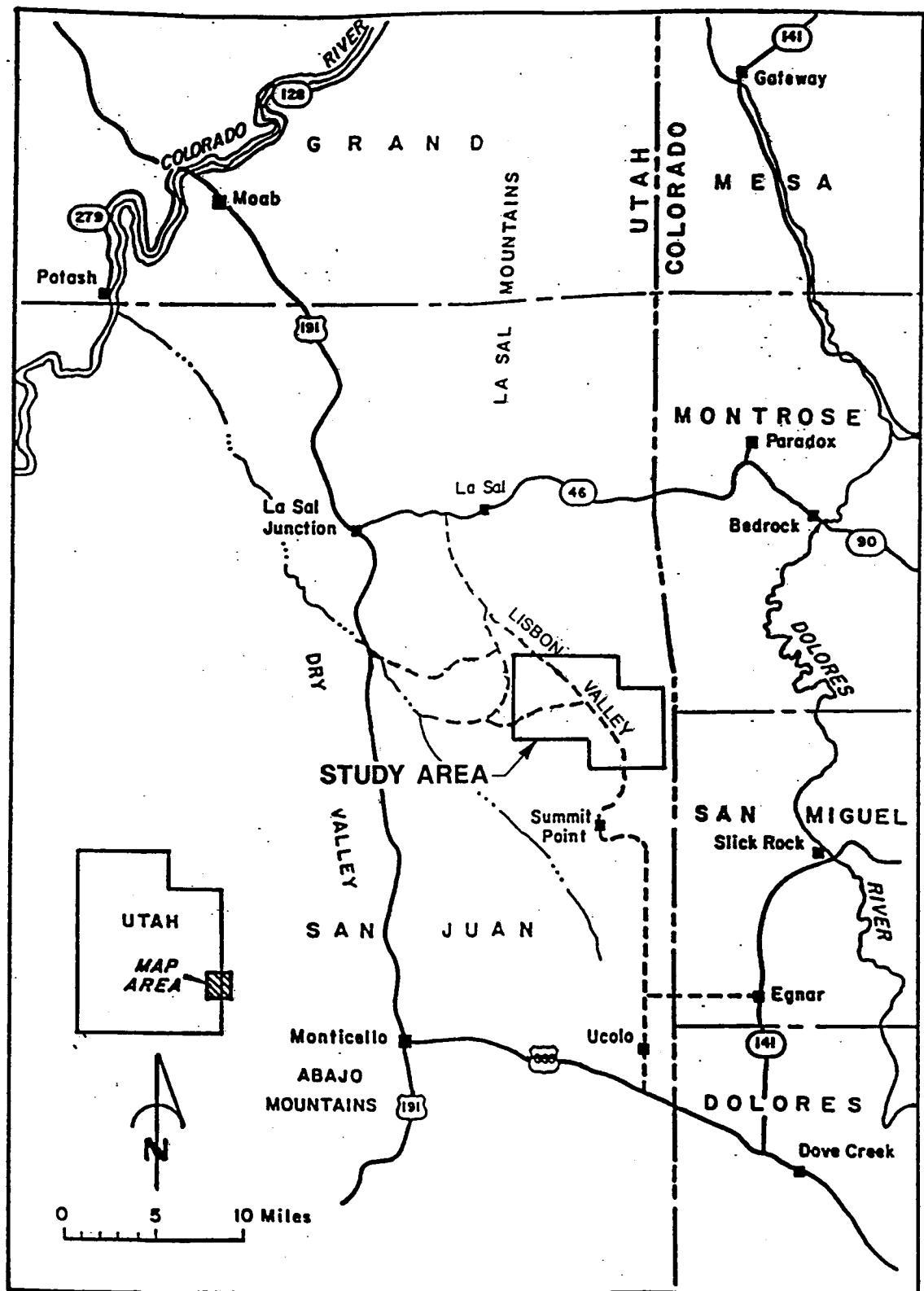
Sections 30, 31; Township 30 South, Range 26 East

The proposed project facilities are sited in:

Sections 23, 24, 25, 26, 27, 35, 36; Township 30 South, Range 25 East

Section 1; Township 31 South, Range 25 East

The project boundary and proposed facilities are shown on Figure 1-3. Access and powerline corridors extend off of the property.



Job No. : 373-07

Prepared By: P.G.

Date: 8/95

Figure 1-1
LOCATION MAP
LISBON VALLEY AREA
SAN JUAN COUNTY, UTAH

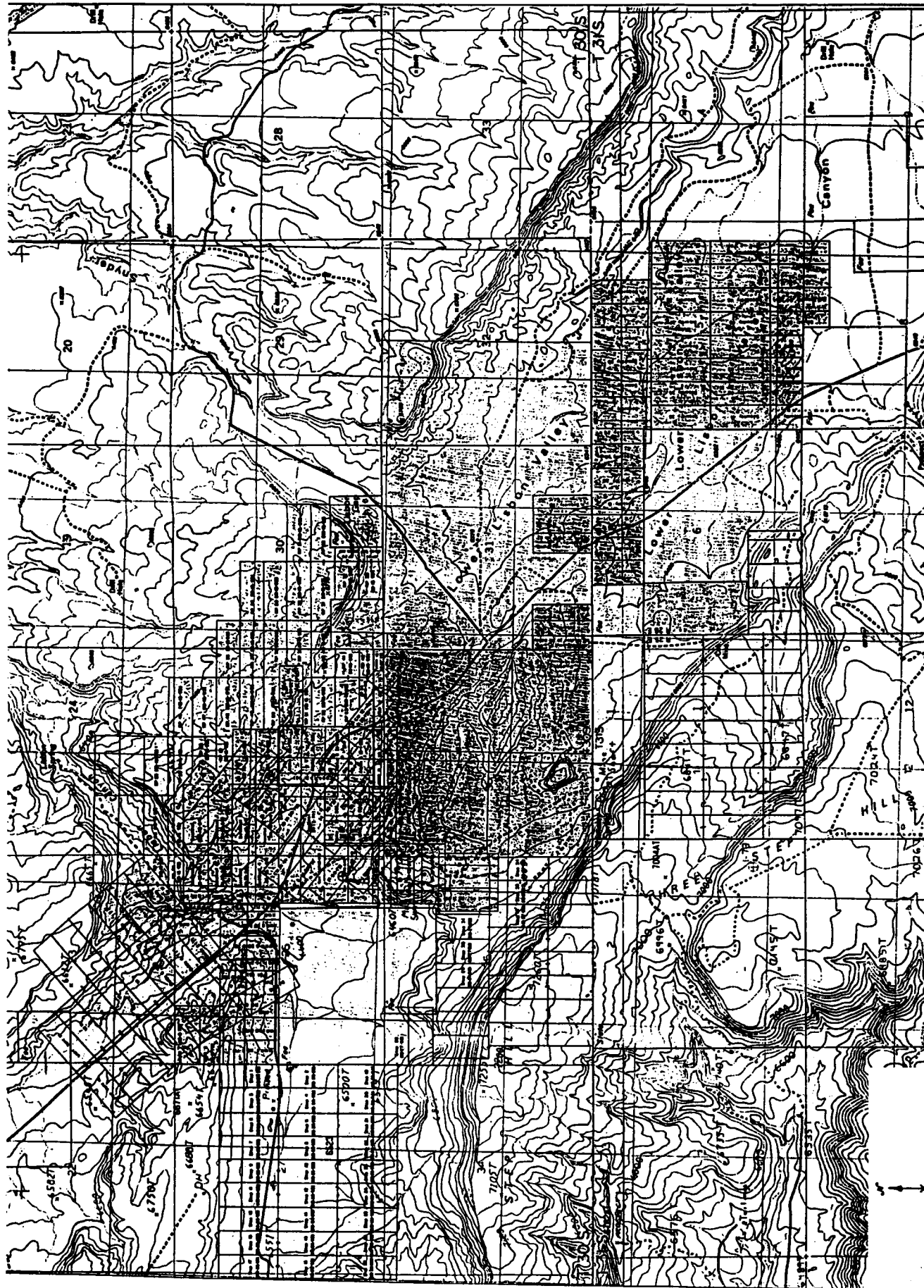


Figure 1-2
CLAIM MAP
LISBON VALLEY AREA
SAN JUAN COUNTY, UTAH

Job No. : 373-07

Prepared By: P.G.

Date: 8/95

0 2000 4000 6000 8000 10000
Feet
R-25E

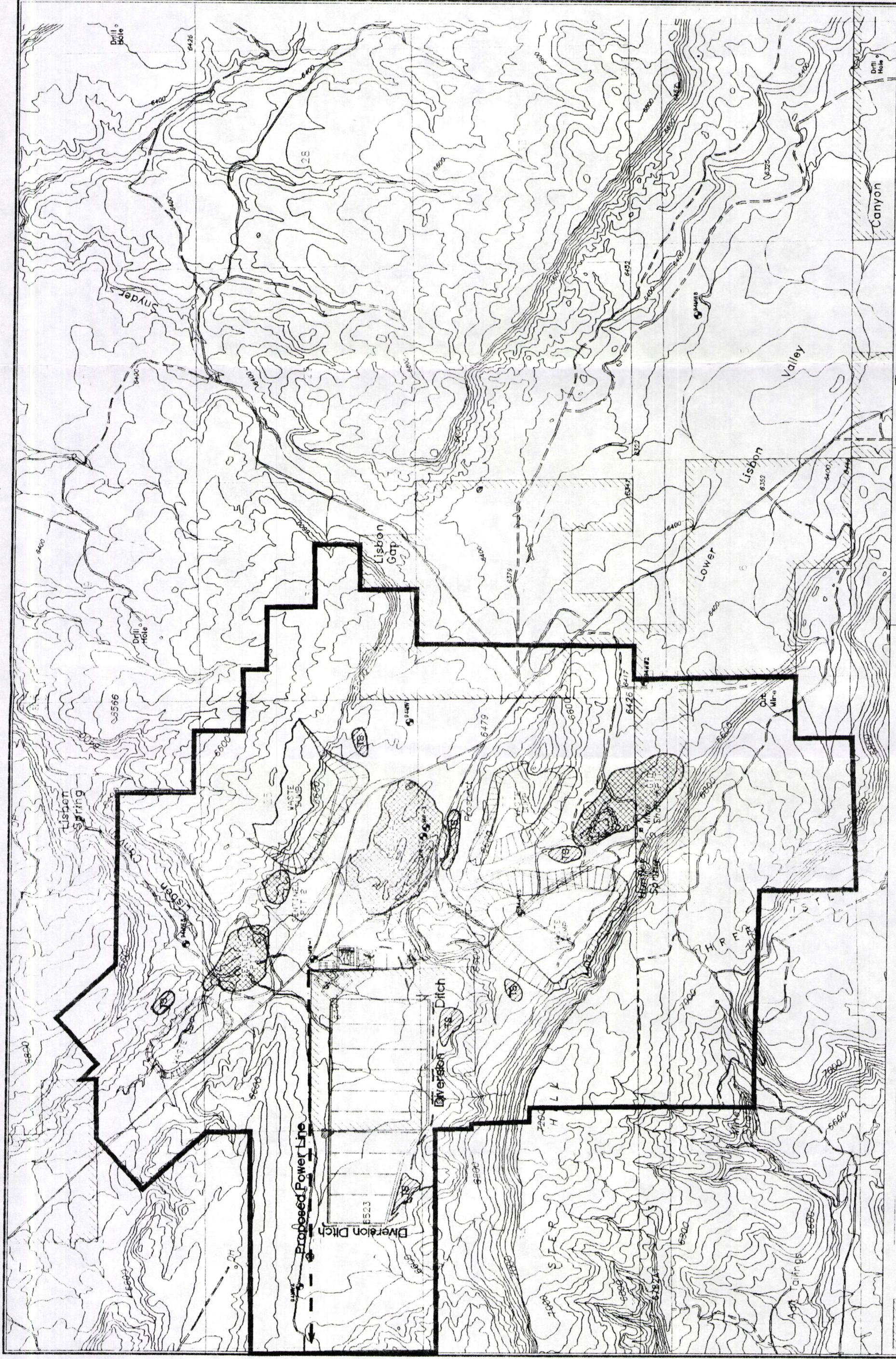


Figure 1.3
SITE MAP
Lisbon Valley Copper Project

STATE **BLM** **PROJECT BOUNDARY**

FEE

0 500 1000 1500 2000 2500
FEET

SUMMO USA Corporation

Summo is proposing to construct, develop, operate and reclaim the necessary facilities for mining an average of 16,500 tons of ore per day over a currently projected 10 year mine life.

Summo desires to complete permitting by the 4th quarter of 1996 and begin development in the 1st quarter of 1997. The estimated time necessary to complete construction of all facilities is approx. 10 months. Full scale operations are projected for November of 1997. This schedule assumes the prior review and approval of all appropriate federal, state and local agencies.

Preliminary discussions with the BLM have revealed that a Memorandum Of Understanding (MOU) will be developed between the BLM and Summo. This document will highlight roles and responsibilities of each party. It is also understood that a third party environmental contractor will be required to perform the necessary analysis to satisfy the requirements of the National Environmental Policy Act (NEPA).

Permitting requirements of other federal, state, and local authorities will occur concurrently with NEPA to the extent possible.

2.0 PROJECT OVERVIEW

The district has a long history of mining activity. Copper was discovered in the late 1800's. Intermittent exploration and small scale mining activities from open pit and underground operations occurred until the mid 1970's. Visible evidence of this is evident today in the form of abandoned pits, stockpiles and overburden dumps that have not been reclaimed. Incomplete records for this period indicate that approximately 2.5 million pounds of copper was produced from at least five oxide deposits in the Lisbon Valley. In 1993, Summo picked up the property and exploration drilling and testing continued.

In 1995, Summo began a feasibility study that included an evaluation of such things as project size, economics, metallurgy, mine planning, processing (leaching), permitting, and closure. This POO represents the findings of that feasibility report and presents them for BLM review.

This POO also would allow for the reclamation of those facilities that are currently at the site which have not been reclaimed. There is currently over 85 acres of open pits and overburden dumps at the project which fall within the proposed operation.

Summo will employ up to 105 people at one time over the life of the project. The construction workforce will be approximately 80 people. Once the place is up and running, the 105 people needed for operations will be employed. Summo will make every attempt to hire a local skilled (mining) workforce.

2.1 Description of Land Holdings

The Lisbon Valley Project is comprised of approximately 258 unpatented lode mining claims, state leases, and private land. The unpatented lode claims are administered by the BLM. Summo presently holds, or will obtain, all necessary rights to surface use and access of affected lands. Specific claim names and corresponding UMC numbers are provided in Attachment 1. These claims are depicted on Figure 1-2.

2.2 Description of Project Area

The Lisbon Valley Project is located geographically in the far eastern area or near the border of the state, approximately 40 miles southeast of Moab and 18 miles southeast of La Sal, in San Juan County. The project area is commonly referred to as Lower Lisbon Valley (Figure 1-3).

The project, which lies within the Canyonlands division of the Colorado Plateau physiographic province, is a broad northwesterly trending flat-bottomed valley about one mile wide and four miles long. It is bordered on both sides by steep walled mesas and ridges which rise to elevations of 500-700 feet above the valley floor. Maximum relief on the property is about 650 feet.

A more detailed environmental setting (by discipline) for the project is provided in Chapter 5 of this POO.

2.3 Description of Geology of the Project Area

Regional Geology

The geology of the Lisbon Valley region is dominated by structural and stratigraphic features related to the Paradox Basin, a thick succession of sediments and salt deposits that occupies most of southwestern Colorado and southeastern Utah. Lisbon Valley is one of several northwesterly trending valleys formed along salt anticlines in the basin. The Lisbon Valley was formed as a result of regional folding during Permian through Tertiary time. It is a 15 mile long, doubly plunging structure which is faulted along its longitudinal axis by the Lisbon Valley Fault, a normal fault which strikes N40°W and dips 50°-85° northeast with vertical displacement exceeding 3,800 feet. At the ends of the Lisbon Valley Fault the structure tends to horsetail into a number of smaller branching fault strands.

Project Geology, Mineralization, and Alteration

The geology underlying the Lisbon Valley claims is directly related to structures, the Lisbon Valley anticline and the Lisbon Valley Fault, and to stratigraphy, the Burro Canyon and Dakota Sandstones. Based upon thousands of feet of drilling in the Centennial area, the largest of the three deposits, it has been found that the best copper mineralization occurs in four or five distinctive beds in the Burro Canyon and Dakota formations.

Copper mineralization consists of both sulphides and oxides that are found disseminated throughout the medium and coarse-grained Dakota and Burro Canyon formations and as lenses and nodules along fractures. Copper minerals include azurite, malachite, and sometimes cuprite in the upper oxidized parts of favorable beds.

Although copper mineralization can occur in several stratigraphic units, the best grades and thickness appear to be spatially related to their close proximity to the Lisbon Valley Fault or to branching and cross faults in the hanging wall block. Because there are no igneous rocks in the

Lower Lisbon Valley area, hydrothermal alteration commonly associated with copper deposits is absent and country rocks remain unaltered.

2.4 Project Scope

The scope of the project includes the construction, operate and reclamation of the 1030 acre Lisbon Valley Project. Components of this operation are depicted on Figure 2-1. This figure also includes the estimated acreage of each individual facility.

**Figure 2-1
Listing of Facility and Acreage of Impact**

Facility Pits	Acreage
A) Centennial	116
B) Sentinel #1	38
Sentinel #2	9
C) GTO	68
Overburden Dumps	
A) Centennial	118
B) Sentinel	55
C) GTO (West Dump)	186
(East Dump)	90
Leach Pad Area	257
Process Area and Facilities	21
Miscellaneous	
A) Haul Roads	33
B) Topsoil Stockpiles	39
Total Project Related Disturbance	1,030

2.5 Project Layout

The project facilities will be constructed in the areas shown on Figure 1-3. The project site is intersected at its midpoint by the Lisbon Valley county road which runs from northwest to southeast. Because of the location of ore bodies, and in the interest of conserving space, project facilities have been placed on both sides of the county road. A fence will be constructed around the facility for safety purposes.

2.6 Project Life Expectancy

The project is currently projected to have a 10 year mining life. Processing will continue after mining ceases for an additional year. Final closure and reclamation activities will take approx. 5 years.

During operations, Summo will continue to explore in the surrounding area in an attempt to expand the current ore reserve and increase the projected mine life.

3.0 DESCRIPTION OF PROJECT (DETAILED)

3.1 Mining

Mining at the site will occur 24-hours per day, 7 days a week throughout the project mine life.

3.1.1 Pre-Production Requirements

Pre-production requirements for mining activities are limited due to the fact that the first two pits where mining begins have ore at or near the surface. Requirements will include:

- A clear, level laydown area of sufficient size and/or maintenance shop for assembly and parking of the mine fleet;

- Topsoil removal and stockpiling in the Sentinel and Centennial pit;
- Preparation of the ore stockpile site including topsoil removal and stockpiling, site leveling and compaction.
- Construction of haul roads from the Sentinel and Centennial pits to the appropriate waste dump sites and the crusher site;
- Installation of a water station where the water truck will fill;
- Installation of fueling station for fuel and haul trucks;
- Installation of the ANFO silo for explosives storage (although bagged ANFO may be used initially);
- Establishment of a magazine site for trailer storage of initiators and det cord in accordance with regulations.

3.1.2 Pits

The four pits: Sentinel #1, Sentinel #2, Centennial, and GTO are shown in their ultimate configuration in Figure 1.

3.1.2.1 Sentinel #1 and Sentinel #2

The Sentinel Pits have ore outcropping on surface, and a low stripping ratio. The Sentinel pits are scheduled for production at the start of the project. The Sentinel pits will be mined at an average of 1,600,000 tons of ore per year over the first 6 years with the final year 7 production totaling 274,000 tons. The average stripping ratio is 0.93 to 1; however, the annual stripping ratio varies

from 0.03 - 2.69 to 1. The total amount of material mined from the Sentinel pits is 19,069,000 tons of which 9,898,000 tons are ore and 9,170,000 tons are waste.

The haul roads have been designed at 10% grade with a road width of 80 feet (including berms) for the upper portion of the Sentinel Pit. The haul road accessing the bottom 120 feet of the pit has a 12% grade. The haul road accessing the small satellite pit (Sentinel #2) to the southeast of the main pit has roads 50 feet wide at 12% grade.

3.1.2.2 Centennial Pit

Ore in the Centennial pit outcrops, eliminating pre-production stripping for Phase I. Production begins in the Centennial pit at the start of operations and continues for nine years. An average annual production of 3,000,000 tons of ore is mined from the pit. The average stripping ratio is 1.71 to 1, however during years 3 and 4 the stripping ratio is 3.22 to 1 as pre-stripping of waste overlying Phase III ore begins. A total of 74,271,000 tons of material are mined from the Centennial pit, of which 27,409,000 tons are ore and 46,862,000 tons are waste.

The Centennial production is divided into three separate phases according to three ore bodies having different leach characteristics. Phase I ore is less oxidized but of higher grade. The first year pit is limited to the Phase I ore to deliver high grade ore to the pad. Most of Phase I is mined in the first year. The second year production finishes Phase I and targets higher grade material in Phase II. Phase II ore is more oxidized but has a lower average grade than Phase I ore. Phase II production continues into year 4. Phase III ore is less oxidized and underlies a thick sequence of waste. Pre-stripping of Phase III is planned for Years 3 and 4.

Haul roads in the Centennial pit are designed with maximum grades of 10% and with road widths of 80 feet (including berms).

3.1.2.3 GTO Pit

The GTO pit has the highest strip ratio of the three pits, and ore is covered by a minimum of 100 feet of overburden. Mining is delayed until year 6 due to high overburden stripping requirements. Contractor stripping with scrapers will begin in year 6 to expose the ore. A total of 13,556,000 tons of overburden are proposed to be mined by contractor in year 6 of the project. Overburden stripping will be performed by ripping with D-9L dozers and removing the material with scrapers. The average strip ratio for GTO is 6.95:1. The total material mined from GTO is 42,516,000 tons, of which 5,345,000 tons are ore and 37,171,000 tons are waste.

Haul roads were designed for the GTO pit with a maximum grade of 10% and a road width of 80 feet, except for the bottom 60 feet, which has the same grade but the width is reduced to 50 feet.

3.1.3 Drilling and Blasting Procedures

Drilling will be performed using a 10" rotary drill, with ANFO as the explosive. Blasting will occur approximately every other day, and will only occur during daylight hours.

3.1.4 Waste Stripping

Drilling and blasting will be used to break all of the waste in the Sentinel pit and Phase I and II of the Centennial pit. Substantial waste from Phase III of the Centennial Pit and the GTO Pit has been estimated based on ripping it with a D-9 dozer rather than drilling and blasting. Waste will be loaded into 150 ton trucks with either a 14 cubic yard loader beginning in year 1, or a 24 cubic yard loader beginning in year three. The contractor stripping of 13,550,000 tons in the GTO pit is based on ripping with a CAT D9 dozer and hauling to the dumps with 44 yd scrapers.

3.1.5 Ore Stripping

All ore in all pits is scheduled to be broken by drilling and blasting. CAT 785B 150 Ton trucks or equal will be loaded with either a 992 or a 994 front end loader. The trucks will haul the ore from the pits to an ore stockpile sited at the crusher.

3.1.6 Waste Dumps

Waste dumps with a total combined capacity of 90,000,000 tons at the best available sites were laid out. Current production calls for a total of 79,646,000 tons of waste. It was proposed that waste would be dumped at one elevation and dozed over the side of the dump in 40 to 50 foot lifts.

Current design calls for a total of four dumps to dispose of scheduled waste. The dump to the northwest of the Sentinel pit will hold 9,000,000 tons, which represents all of the waste produced from the main Sentinel pit. The dump north of the Centennial pit will hold 47,000,000 tons, which represents all of the waste from Centennial and all of the waste from the Sentinel satellite pit. The dump west of the GTO pit will hold 37,200,000 tons representing all of the waste from GTO. The dump to the north of the GTO pit will accept waste from Centennial and GTO pits and will provide additional storage if needed.

Figure 1-3 shows dump final configuration location and tonnage. Dumps were designed with a 2.5 to 1 slope.

3.1.7 Ore Stockpiles

As current designs call for all feed to the crusher to be via a front-end loader with no direct dumping from the trucks, an area capable of holding 100,000 tons of ore (roughly one week's production) is needed for the ore stockpile. This stockpile will allow maximum feed to the crusher at all times, while allowing for uninterrupted production from the mine during periodic maintenance.

3.1.8 Haul Roads

Haulage ways were designed to access the pits, dumps and the crusher site on an annual basis. The total length of haul roads as currently designed is 15,000 feet. Of this length, 6,500 feet are associated with Sentinel mining, 800 with Centennial mining and 5,350 with GTO mining. A total of 2,350 feet are common to several or all of the pits.

3.1.9 Major Equipment

Major equipment required for mining are:

- 1 IR TB5 blast hole drill;
- 1 D-9 dozer;
- 1 Tradestar ANFO truck;
- 1 Cat 992 14 cu yd front end loader;
- 1 Cat 994 24 cu yd front end loader;
- 7 Cat 785B 150T haul trucks for ore and waste;
- 1 Cat 14G grader for ramp maintenance;
- 1 Cat D9N dozer for waste placement on dumps;
- 1 15000 gal. Capacity off-road water truck for dust suppression on ramps and dumps;
- 1 Cat 992 front end loader 14 cu yd capacity at the primary crusher stockpile;
- 1 Cat D-7 dozer at stockpile;
- 3 light plants;
- 4 pickup trucks;
- 1 maintenance truck;
- 1 fuel and lube truck.

3.1.10 Explosives

Drilling will be done using a 10" rotary drill. ANFO will be used as the explosive. ANFO will be stored in a silo supplied by the ANFO supplier and delivered to the blast patterns with a Tradestar ANFO truck. Separate storage facilities for blast initiators and det cord will be required in accordance with any applicable regulations. The magazine will be sited in a drilling condemned site with a lockable trailer for storage.

3.2 CRUSHING

3.2.1 Crushing facility description

The Ore Receiving and Crushing area is shown on Roberts & Schaefer flowsheet drawing 6326-FS01 located in Attachment 2.

The ore receiving hopper and crushers are located near the Centennial ore body. Ore from the Centennial pit, Sentinel pits and GTO pits will be transferred with 150 ton capacity haul trucks to the Run of Mine (ROM) stockpile located adjacent to the ore receiving hopper. The ore will be stockpiled close to the ore receiving hopper. Ore from this stockpile will be recovered by front-end loader and deposited in the hopper.

The hopper will be fitted with a stationary grizzly with 24 inch openings. Undersize material will fall into a surge hopper, while oversize rocks are removed by a front-end loader and stockpiled. The oversize material can be crushed down by other methods and returned to the circuit for processing if the grade and quantity justify further treatment.

The crushing plant will operate two or three shifts per day as required to meet the needs of the Heap Leach Area and SX-EW plant. A vibrating grizzly feeder will feed material from the ore receiving hopper at an average rate of 478 dry tons per hour. The grizzly oversize (+6") will report to the primary jaw crusher. The jaw crusher will use a nominal setting of 6 inches.

The jaw crusher discharge and grizzly undersize material will be collected on the 36 inch wide Primary Crusher Collecting Conveyor.

Dust will be controlled in the primary crushing area by means of a water spray system.

Ore from the primary crusher will be transferred to a double deck vibrating screen. The top deck will have 3 inch screen openings and the bottom deck will have 1-1/2 inch screen openings. Oversize from the top and bottom decks will report to the Secondary Cone Crusher.

The Secondary Cone Crusher will operate with a closed side setting of 1-1/2 to 2 inches. The Cone Crusher product will join the vibrating screen undersize product before being transferred to the heap leach pad area.

Dust control in the secondary crushing plant area will be accomplished with a dust collector system.

3.2.2 Conveying and Stacking

The Conveying and Ore Stacking is shown on flowsheet drawing 6326-FS01 (Attachment 2).

Crushed ore will be transferred from the Secondary Cone Crusher area to the Heap Leach area by a series of conveyors and stacked on an impermeable leach pad with a radial stacker. The pad is approximately 8,300 feet long by 2,400 feet wide and will contain the ore in three 36 foot high lifts when completed.

3.3 PROCESSING SUMMARY

The Lisbon Valley copper project is a conventional sulfuric acid heap leach and solvent extraction-electrowinning operation. The facilities were designed to process an average of 478 tons per hour of ore to produce 17,000 tons per year of copper cathodes.

Raffinate (a low grade sulfuric acid solution) from the raffinate pond will be pumped to the heap and distributed by a system of headers and sprays or drip irrigation emitters. This raffinate solution will percolate through the heap and dissolve copper in the ore as a copper sulfate solution. This solution will be collected in the Pregnant Leach Solution (PLS) pond before being pumped to the SX circuit.

The PLS solution will then be pumped to the first extraction stage in the SX circuit. Here the PLS solution is mixed with an organic solution containing an extractant which absorbs the copper ions. The copper loaded organic solution flows through a settler tank where the organic and the aqueous solutions disengage. There are two extraction stages in series that remove copper from the PLS solution. With most of the copper transferred to the organic phase, the barren aqueous solution or raffinate is returned to the raffinate pond and resprayed on the heap.

The copper containing loaded organic solution flows to the stripper mixer/settler tank and is mixed with a high strength sulfuric acid solution which forms the electrolyte for the tankhouse. The copper ions transfer to the aqueous phase and are separated from the organic. The pregnant aqueous strip solution (strong electrolyte) is filtered before being directed to the electrowinning circuit (EW). The strong electrolyte solution is pumped to the electrowinning cells where the copper is deposited onto stainless steel cathodes. The EW tankhouse is designed to produce London Metal Exchange LME Grade A 99.99% copper. The copper is then washed, stripped from the steel cathode, sampled, and banded for shipment.

A series of flowsheets have been prepared for the project and are included in Attachment 2.

3.3.1 Heap Leaching Overview

The heap leaching flows are shown on flowsheet drawing 6326-FS02 (Attachment 2).

Crushed ore on the leach pad will be leached with raffinate solution from the raffinate pond which contains dilute sulfuric acid. Sulfuric acid and make up water are added as needed to the pond to maintain the solution and acid strength for the heap leach. Raffinate solution pumps at the raffinate

pond will deliver leach solution to a main header which feeds branch lines at approximately 100 foot spacings. The branch lines connect to a network of pipes with spray or drip irrigation tubing to distribute the solution to the heap. The raffinate solution will percolate through the heap dissolving copper.

To maintain the copper strength in the pregnant leach solution (PLS), an intermediate solution sump will collect leach solution from partially leached ore. This "intermediate" solution will be pumped to fresher ore on the pad to increase the PLS grade. The final PLS solution will flow by gravity to the PLS pond, from which it will be pumped to the solvent extraction plant. The PLS will contain approximately 3.0 grams per liter of copper.

3.3.2 Plant Description SX-EW

3.3.2.1 SX Circuit

Solvent extraction flowsheets are shown on drawings 6326-FS03 and 6326-FS04 (Attachment 2).

The SX area consists of three mixer/settlers and associated storage tanks. Two extraction mixer/settlers in series and one stripping mixer/settler have been designed for this plant. Each mixer/settler is installed outdoors with a pump mix box, an auxiliary mix box, and a settler with covers. The pump mix box contains an impeller designed to mix the aqueous and organic solutions and to provide hydraulic head. Solution from the pump mix box flows through the auxiliary mix box for a total retention time of at least two minutes before entering the settler.

The PLS will be pumped at 3,000 gpm to the E1 extraction mixer. In the mixer, PLS will contact organic solution which will absorb copper from the PLS. The organic solution contains an organic chelating agent (extractant) dissolved in a high flashpoint kerosene (diluent) which preferentially removes copper from the PLS solution. The partially stripped PLS will separate from the organic solution in the settler and flow to the E2 extraction mixer. There, most of the remaining copper will absorb into fresh organic solution, leaving a stripped acid or raffinate solution which separates

from the organic solution in the settler. The raffinate solution flows through a flotation column to remove and recover entrained organic before being pumped back to the raffinate pond for use on the heap leach pads. The raffinate contains approximately 0.3 grams per liter copper. The acid solution used in the leach and SX circuits is in a closed loop system with no losses except through evaporation, entrainment in the heap, or entrainment in the organic solution to the Electrowinning circuit.

The strong electrolyte (strip solution) from the E1 settler, which contains about 46 g/l copper, will flow through a flotation column and filter system to remove entrained organic solution and small particles.

Crud which is collected in the SX settlers and from the flotation column overflow will be decanted into a pair of tanks so that the organic and aqueous solutions can be recovered and recycled.

3.3.2.2 Electrowinning (EW) Circuit

Drawing 6326-FS04, shows the flowsheet for the electrowinning circuit.

The strong electrolyte solution will be heated in a pair of heat exchangers. The first heat exchanger or Electrolyte Interchanger will recover heat from electrolyte solution being pumped back to the SX circuit. The second heat exchanger will use hot water to heat the strong electrolyte solution if cold weather or startup conditions make the extra heat necessary.

The strong electrolyte will flow through the scavenger cells which will use electrolysis to plate out copper on the cathodes. The scavenger cells will also protect the majority of the copper in the other cells if impurities get past the electrolyte filter. In both the scavenger and commercial electrowinning cells, copper will be deposited onto stainless steel blanks. During this process, water will dissociate to generate oxygen at the anodes. Additional sulfuric acid will also be generated. Solution from the scavenger cells will flow to the electrolyte recirculation tank. Guar and cobalt sulfate solutions will be added to both the strong electrolyte solution before it enters the

scavenger cells and the electrolyte recirculation tank. Guar is added to create smoother cathodes and cobalt sulfate is added to reduce the anode corrosion rate.

Electrolyte solution from the electrolyte recirculation tank will be pumped through the commercial cells, where additional copper will be plated out, and will return to the electrolyte recirculation tank. A portion of the recirculation tank's solution will be pumped through the electrolyte interchanger to recover heat before being pumped back to the S1 stripper mix box as lean electrolyte.

Sulfuric acid and water will be added to the electrolyte recirculation tank as needed. The water will come from the reverse osmosis (R.O.) system which will remove impurities including chloride ions. Chloride will pit cathode mother blanks if it becomes too concentrated in the electrolyte. The local well water for the plant contains chloride salts. A small electrolyte bleed stream will be used to control chloride and iron concentrations which can build up in the electrowinning circuit over time.

A rectifier will supply direct current to the electrowinning cells.

3.3.2.3 Cathode Handling

Cathodes from the electrowinning cells will be removed and transferred to the cathode handling system with a bridge crane. A semi-automatic cathode handling system from Wenmec will be used. The cathode handling system washes the cathodes with hot water, flexes and separates the copper plates from the mother blanks, weighs and samples the copper plates, and bands the plates for shipping. The final copper plates will meet LME Grade A copper requirements.

3.3.3 Heap Leach Pad Considerations

The heap leach facilities consist of a leach pad, a raffinate pond (barren solution), a pregnant leach solution (PLS) pond, as well as the necessary ditch systems for solution collection and runoff diversion. The facilities are designed to contain all solutions (process waters and direct precipitation) within the system without discharge to the environment.

The layout of the facilities: 1) minimizes the ore transport distance to the heap leach pad, 2) takes advantage of the natural topography to minimize earthwork requirements and allow gravity drainage of the solutions from the pad, and 3) protects the environment by containing all solutions and precipitation. Design criteria include the following:

- * Provide adequate capacity for the ore to be stacked and leached without interfering with daily operations;
- * Design a layout to accommodate staged construction to minimize liner exposure and reduce initial capital costs;
- * Provide adequate pond capacity for operating conditions, drain-down of the heap, and containment of runoff from the pad due to the design storm event; and
- * Design the leach pad and pond liner systems to protect the environment and meet the intent of the design requirements set forth by the State of Utah in their draft rule R317-11 Extraction of Metal Values by Heap Leach Mining Methods, dated November 10, 1994.

A general overview of the individual components of the heap leach facilities are discussed in the following sections.

3.3.4 Heap Leach Pad Design

The leach pad is designed to contain up to 45 million tons of ore and to route solution drainage to the solution ponds via gravity drainage. The pad layout is such that it may be constructed in four stages to accommodate ore production schedules and may be expanded to contain additional tonnages without having to reconstruct a whole new heap leach system.

The proposed pad covers about 11.6 million square feet in total. It will be graded to follow the natural topography of the valley. Therefore, drainage will be in a northern and easterly direction

with the solution ponds located at the northeast corner of the pad as shown in Figure 1-3. An access road and conveyor corridor will be constructed along the south side of the pad. The access road will be about 20 feet wide and extend the full perimeter of the pad. The solution collection ditch will be constructed along the north edge of the pad and drain by gravity to the solution ponds.

The ore will be stacked on the pad in three lifts, each being 36 ft in vertical height. The first lift will be offset from the edge of the pad a minimum of 10 ft to provide a buffer zone between the toe of the lift and the edge of the lined pad. Subsequent lifts will be set back from the crest of the previous lift to create an over all slope of 2H:1V (Horizontal:Vertical). The face of each lift will be sloped at the angle of repose of the crushed ore. This will result in a slope grade of about 1.5H:1V.

The pad will be constructed in stages as mentioned above beginning with the eastern section and progressing westerly in an up gradient direction. The first stage is about 2.45 million square feet and will contain up to 22 months of production in the first two lifts. Stage two of the leach pad will be about 2.45 million square feet and increase the pad capacity to 42 months of production in the first two lifts. Stage 3 will also be about 2.45 million square feet and increase the capacity to about 62 months of production in the first two lifts. At this time the third lift will be placed over the existing pad space prior to constructing Stage 4. This will increase the operating time of the first three stages to about 88 months. Stage 4 will be about 3.82 million square feet and provide the required capacity for the remainder of the project .

The heap leach pad liner system will consist of one foot of compacted low permeability soil overlain by 80-mil thick high density polyethylene (HDPE) plastic. The plastic sheets will be welded together to form a continuous impermeable synthetic liner. The conveyor corridor along the south side of the pad will be lined in a similar manner and constructed to drain onto the leach pad as described below. The leach pad liner system will also be continuous with the solution ditch liner system in order to provide complete containment of the solutions within a lined system during leaching and solution routing to the ponds.

A grid of solution collection pipes spaced approximately 20 to 30 feet apart will be installed over the synthetic liner to enhance drainage of the solution from the ore and reduce the depth of solution over the liner. The pipes are spaced to control the head to about one foot. This reduction will reduce seepage potential through the liner system and enhance the stability of the stacked ore. The pipe will be covered with a protective layer of material which will likely be a layer of ore spread over the pad prior to stacking operations. Details for placement of the protective layer will be determined as part of final design and will be consistent with current practices for protecting synthetic liners.

The conveyor corridor will be about 20 ft wide and separated from the access road by a berm. The conveyor corridor will be lined with a 60-mil thick HDPE liner that will overlap the 80-mil heap leach pad liner by a minimum of 3 feet. The conveyor corridor liner will not be welded to the heap leach pad to allow for movement and repairs of the conveyor corridor liner.

Figures 3-1 and 3-2 show liner detail for Pad and Pond construction.

3.3.5 Solution Management

The management of the process solutions will be accomplished by constructing lined solution ponds to contain and store solutions drained from the leach pad. Other components include the solution collection pipes installed over the liner (as described above), the distribution pipelines and drip system, and the drainage ditch along the north side of the leach pad. Below are summary descriptions of the different components of the solution management system.

3.3.6 Solution Pond System Layout and Design

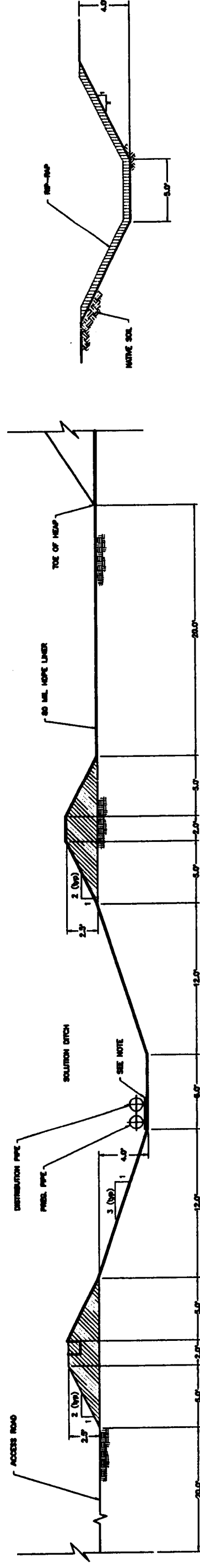
The solution ponds have been designed to separately store the two types of solutions be circulated through the heaps plus excess runoff from the design storm event. One solution is the PLS (Pregnant Leach Solution) and the other solution is the Raffinate solution (barren and intermediate



PAD PERIMETER
SECTION nts

**TYPICAL PAD LINER
DETAIL nts**

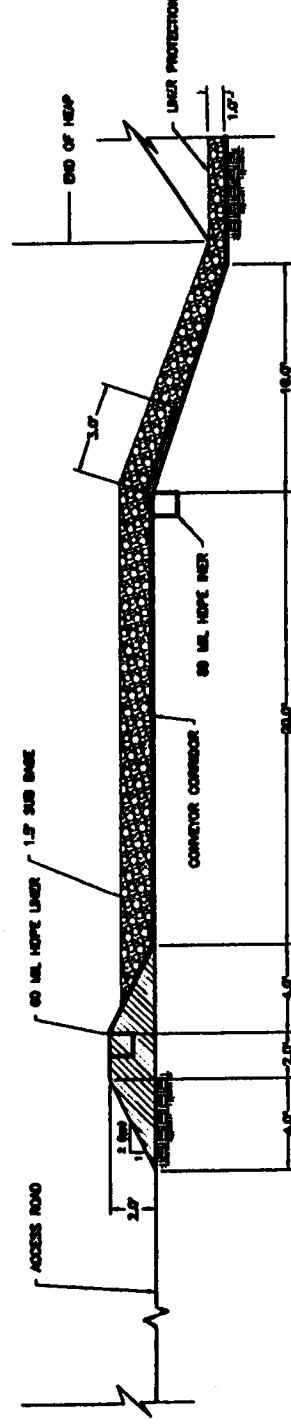
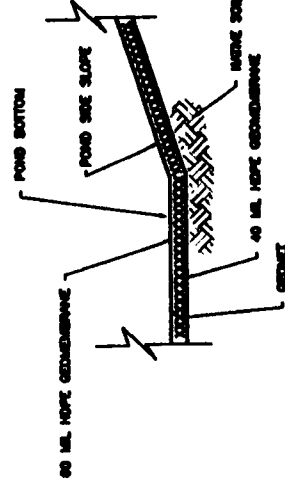
TYPICAL HEAP CONFIGURATION
DETAIL nts



NOTE: PAGES TO REST ON A RIB SHEET (I.E. DRESS LINER OR CONNECTOR RIB) MATERIAL) AND/OR SUPPORT BLOCKS TO BE DETAILD IN FINAL DESIGN.

SOLUTION CHANNEL
SECTION nts

DIVERSION DITCH
DETAIL nts



CONVEYOR CORRIDOR
SECTION n1s

GEOSYNTHETIC LINING SYSTEM, PONDS
DETAIL nts

Figure 3-1

**USCON VALLEY COPPER PROJECT
HEAP LEACH PAD/POND AREA
SUMMO USA CORPORATION**

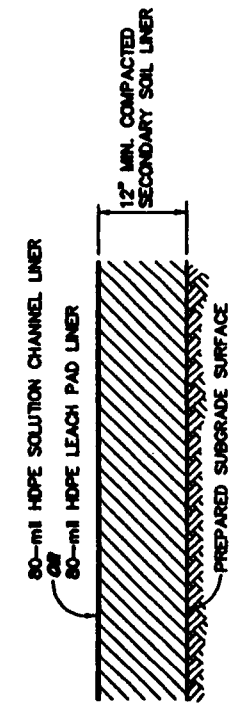
LEACH PAD DETAILS

Dwelling Name **SAN JUAN COUNTY, UTAH**

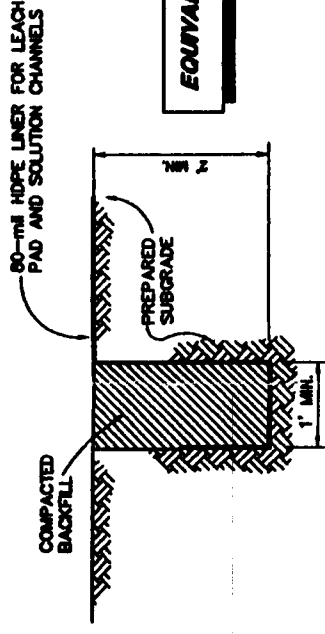
Investigator No.	File Name
04304-2	04304-2

D.P. ENGINEERING, INC.

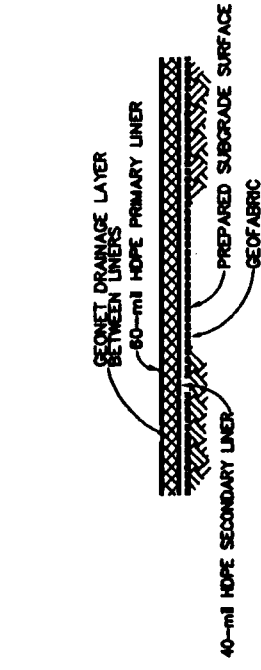
Green Valley, CA • El Dorado Hills, CA • Corona City, NY • Denver, CO • Hastings, NE
7000 E. Lincoln Street Suite 108, 14414-1400, CO 80122 (303) 347-0889



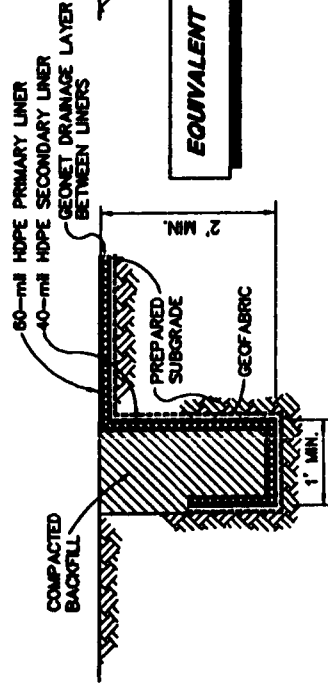
LEACH PAD LINER SYSTEM



TYPICAL SINGLE LINER ANCHOR TRENCH



**DOUBLE GEOMEMBRANE LINING
WITH DRAINAGE LAYER**



TYPICAL DOUBLE LAYER GEOMEMBRANE ANCHOR TRENCH

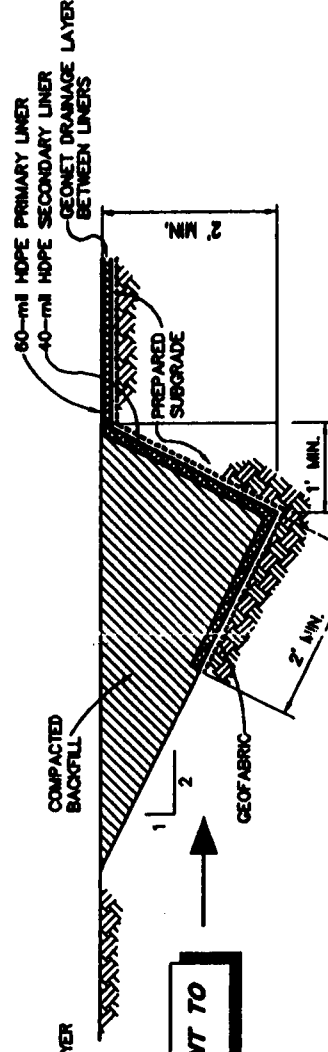


Figure 3-2

**LEBON VALLEY COPPER PROJECT
HEAP LEACH PAD/POND AREA**

SUMMO USA CORPORATION

LINER DETAILS

Drawing Name	Location
	SAN JUAN COUNTY, UTAH

Drawing No.	File Name
04501--3	04501-3

D.P. ENGINEERING, INC.

7960 E. Lincoln Street, Suite 106, Littleton, CO 80122 (303) 347-0869
 Cross Valley, CA • El Dorado Mills, CA • Corona City, NY • Denver, CO • Hastings, GA

[illegible]

grade solutions). The ponds are sized to contain the estimated volumes using the criteria listed below. The pond capacities are listed in Table 3.1.

Pond Design Criteria

- * 24 hours of operation at 3000 gpm;
- * 8 hours of drain down due to pump failure or power outage
- * Stormwater runoff from minor storm events to avoid solution intermixing
 - 2-yr., 24-hr. storm event (1.4 inches) for the PLS pond
 - 10-yr., 24-hr. storm event (2.2 inches) for the raffinate pond
- * Storm water runoff from the 100-yr., 24-hr. design storm event (3.4 inches)
- * Minimum 2 feet of freeboard above maximum capacity

The stormwater ponds were sized to contain 100% of the runoff from the design storm event based on worst case conditions. This assumes that no ore has been placed on the stage of leach pad under consideration. Preliminary estimates found the two worst conditions were at the completion of Stage 1 construction and again at the end of Stage 4 construction. Based on these findings, two storm ponds are proposed to be constructed in phases. Initially a pond will be constructed to contain the storm water runoff from the Stage 1 leach pad area. As part of Stage 4 construction a second pond will be constructed to contain the increase in runoff over and above the capacity of the existing pond.

Table 3.1 - Solution Pond Capacity Estimates

Criteria	PLS Pond (x10 ⁴ gal)	Raff. Pond (x10 ⁴ gal)	Storm Pond 1 (x10 ⁴ gal)	Storm Pond 2 (x10 ⁴ gal)
24 hrs. @ 3000 gpm	432	432	N/A	N/A
8 hrs. @ 3000 gpm	144	144	N/A	N/A
Minor Storm Event	2390	4045	N/A	N/A
100 yr. Storm Event	N/A	N/A	6252	2055
Total Capacity Estimate	2986	4641	6252	2055

It is currently anticipated that an average irrigation rate of 0.004 gallons per minute per square foot will be used during heap leach operations. The solution will probably (if possible) be applied with drip emitters to minimize evaporation losses in the system. This will be beneficial in reducing fresh water make-up requirements.

The pond layout is such as to minimize the mixing of solutions during storm events to protect the grade of solution in the PLS pond. In summary the PLS pond will spill into the raffinate pond once full. The raffinate pond will then flow into storm pond 1 which will flow into storm pond 2. Spillway elevations will be set such that the raffinate and storm ponds can flow from one to another. The PLS pond spillway into the raffinate pond, however, will be such that the raffinate pond cannot flow back into the PLS pond. This is to provide additional protection of the grade of the PLS in the pond.

3.3.7 Pond Design and Lining System

The ponds required for solution management are listed below. The depth of each pond includes 2 feet of freeboard above the solution level.

PLS Pond

Raffinate Pond

Storm Pond 1

Storm Pond 2

The lining system for the solution ponds will consist of two synthetic liners with a leak detection system between the liners. The outer liner will be placed over a compacted subgrade with a prepared surface suitable for liner placement. The liners will be 60-mil thick HDPE with panels welded together to create continuous impermeable liners. A geodrain material will be placed between the two liners to act as a drainage pathway for the leak detection system. A gravel sump will be installed in the low corner of the pond floor to collect seepage in the geodrain material. A riser pipe will extend up between the liners to the crest of the pond to serve as the monitoring

well of the leak detection system. The riser pipe will be a 4-inch diameter pipe so that a sump pump may be installed for solution removal in the event a leak occurs in the primary liner.

3.3.8 Surface Water Diversion

A diversion channel has been designed to route runoff from areas upgradient of the property around the heap leach facilities. The primary routing of the ditch is along the south side of the pad and to the east beyond the process facilities. The diversion ditch will merge into the natural drainage which exits the property in a northerly direction. Runoff from the west side of the pad will be diverted into the natural drainage channel along the north side of the pad. This channel will also intercept the runoff from the north side of the valley. The natural drainage channel is adequate except in an area near the west end of the stage 1 leach pad. A diversion ditch will have to be constructed along the shoulder of the access road in order to route the flow back into the natural channel. The flow from this area will receive the flow from the south side of the project as it exits the project area.

The diversion ditches around the project site are designed to pass the peak flow resulting from the 100-yr., 24-hr. design storm event. Based on data presented by NOAA for this region, this event produces 3.4 inches of precipitation. Based on the topography and upgradient drainage areas, the typical ditch cross section to carry the estimated peak flows will be a trapezoidal section with a 5-ft bottom width, side slopes excavated at 2H:1V and to maximum depth of four feet. The slope of the ditch will not exceed 1%.

3.4 SUPPORT FACILITIES

3.4.1 Shop

A truckshop repair building will be included with the ancillary facilities for the project. Items installed in this shop include; Oil storage and dispensing tanks & equipment, overhead crane, antifreeze storage tank and dispensing equipment, waste oil storage tank & evacuation equipment,

and drainage sump to contain any spill in the truckshop area. The sump will contain an oil separation tank and storage tank for collection and proper disposal.

3.4.2 Warehouse

A warehouse will be housed within the same building as the truckshop. The warehouse and truckshop will be separated by offices which house the warehouse personnel, operating personnel and the truckshop personnel.

The warehouse will store the necessary spare parts and supplies required to maintain operations.

3.4.3 Laboratory

A laboratory will be required for the proposed project. This laboratory will be used to perform the necessary tests to maintain correct ore grade in the mine and to enable the process plant to maintain high copper quality.

The solution discharge from the laboratory will flow into the raffinate pond. Sewage will be directed into a septic tank and drain field.

3.4.4 Administration Building.

An administration building will be included with this project to house all of the administrative personnel required for the mine. This building will include a separate locker room facility with showers for both the male and female mine personnel. Also included is a First Aid room for emergency medical situations, a lunchroom, conference/training room and line-up room.

3.4.5 Electrical Power

The existing power line at the site does not have the capacity required to meet the demand for the project. Power is available from either a 69 kV power line or a 138 kV power line which are located approximately 6.5 miles from the site. A transformer would be required to step the power down from the 138 kV line to a new 69 kV power line feeding the plant. Power requirements for the plant are approximately 8 megawatts. Summo and Utah Power and Light (UPL) are working together on the permitting, design, and construction of the power supply facilities.

3.4.6 Water Source and Supply

Water for the project will come from wells developed near the project site. A number of test holes have been drilled at the site which identify an aquifer at 250 to 300 feet deep. This aquifer should provide the process water requirements for the project (up to 1000 gpm). Potable water for the facilities will be provided in the form of bottled water. The well water will service the showers, lavatories and emergency eye washes etc.

3.4.7 Access Roads

The primary access road to the Mine will be the Lisbon Valley Road, which is a well maintained County road. Access roads for the plant site are minimal and will require very little work to install. This is due to flat topography in the area where the plant site will be built. Summo will work closely with the county (San Juan) in developing any upgrading and/or maintenance requirements.

3.4.8 Sanitary and Solid Waste Disposal

No sewage systems for the plant are currently in place. A system of septic tanks and leach fields will be installed. It is anticipated that separate systems will need to be installed for the truck shop

and warehouse area, administration and laboratory area and the SX-EW plant. There will be a separate system for the laboratory sink drains which will drain to the raffinate pond.

3.4.9 Fuel Storage and Supply Needs

A fuel storage and dispensing station will be built on site for diesel fuel and unleaded gas. This will be used to operate the mine fleet and small vehicle fleet at the mine site. The diesel fuel storage tanks will consist of two (2) 15,000 gallon horizontal above ground storage tanks and the unleaded gas storage tank will consist of one (1) 5,000 gallon above ground storage tank.

3.4.10 Chemical Storage and Supply

The reagent storage flowsheet is shown on drawing 6326-FS07 (Attachment 2). The reagent storage area will contain the sulfuric acid storage tanks and pumping system. Acid will be added both to the raffinate solution in the raffinate pond and occasionally to the electrolyte solution in the electrolyte recirculation tank. Some acid will also be applied to the ore on the conveyor belt system to agglomerate the ore. The reagent area and SX area will also provide space for storing additional reagents. These include diluent (high flash point kerosene), extractant, guar and cobalt sulfate. Diluent will be stored in a tank. Extractant will be stored in barrels as received from the manufacturer. Guar and cobalt sulfate will be stored in bags as received from the manufacturer.

Ferrous Sulfate will also be stored near the Raffinate pond for addition to the Raffinate solution. This will be stored in supersacks as received from the manufacturer and added to a tank where it will be mixed and pumped into the pond or the piping to the heap.

4.0 EMISSION-POLLUTION CONTROL AND MONITORING

All equipment at the site will be well maintained. Each vehicle will be equipped with standard vehicle emission control devices. In addition, Summo will attempt to purchase low sulphur diesel fuel for the heavy equipment at the site.

4.1 Dust Control From Roads and Disturbed Areas

As stated earlier in the mining section of this proposed plan, dust control will be handled by the spraying of water from a water truck. This will be done in all active mining areas. If this practice becomes too time and water consuming, Summo will look into the application of other dust suppressants such as magnesium chloride or other commercially available products.

Dust suppression in other disturbed areas will involve the prompt revegetation of the disturbed area with a species of grasses, forbs, and shrubs. This will be done in conjunction with seasonal planting schedules.

4.2 Particulate and Gas Emissions Controls

Particulate and gas emissions will be controlled at the mine. These activities will fall under the regulatory purview of the Utah air program. As stated in Section 3.3 the crushing system will have spraybars and dry dust collectors. Emission levels and concentrations will meet the stipulations of the regulatory air program.

4.3 Spill Prevention Plan

There are regulations on the federal and state level that are designed to prevent and mitigate spills of fuels and chemicals. This plan must be developed in conjunction with discussions with federal, state, and local officials.

The plan will address at a minimum, the following:

- 1) Name of the facility
- 2) Location
- 3) Date and year facility began operation
- 4) Hazardous material list
- 5) Maximum-storage capacity

- 6) Description of facility, including storage and handling procedures
- 7) Spill event action program (which outlines roles and responsibilities)
- 8) Medical emergency procedures

The objectives of this plan are to:

- 1) Reduce the potential for accidental spills and environmental contamination through a well-defined materials management program;
- 2) Provide the operating facility with the necessary information to properly respond to a hazardous material spill event;
- 3) Clearly define line of function responsibilities for a spill situation; and
- 4) Provide a response and clean-up program which minimizes environmental impacts.

5.0 ENVIRONMENTAL BASELINE

In order to permit and develop the proposed Lisbon Valley Project, it will be necessary to establish an environmental baseline. Recognizing that this will be required by the regulatory agencies, Summo began collecting the long lead time items that will be critical to the review of the operations.

The baselines that will have to be characterized for permitting, operational, and closure purposes are:

Vegetation

Wildlife

Soils

Hydrology (surface and groundwater)

Cultural, Historical and Archaeological

Geotechnical

Air and Meteorological

Socioeconomics

In April of 1994, Summo hired Woodward Clyde, an internationally recognized environmental firm, to begin establishing critical environmental baseline studies. To date, Woodward Clyde has initiated the following baselines. These were initiated because of their long lead times and to assist in project planning:

Vegetation

Wildlife

Soils Geochemistry

Hydrology (surface and groundwater)

Recently, other environmental baselines were initiated. Summo chose to hire individual specialists with local and site specific experience to initiate these studies. The individual studies and the contractor performing them included:

Cultural, Historical and Archaeological - (Metcalf Archaeological)

Geotechnical - (D.P. Engineering)

Air and Meteorological - (Air Sciences)

The remaining socioeconomic baseline will be completed and incorporated into the permitting requirements of the NEPA document.

5.1 Vegetation

Vegetation studies are conducted for a variety of reasons. The primary reason is to develop an initial characterization of the resources that exist. Additionally, these studies are performed to determine the potential occurrence of threatened, endangered, or sensitive species that may occur within the proposed project area. Finally they are used to see what will grow in a particular area for reclamation and closure planning.

An initial inventory of vegetation communities that occur at the proposed project site highlight two different vegetation zones. These included the Pinyon-Juniper and Sagebrush zones. Both are amenable to excellent reclamation success if the reclamation plan is well conceived.

The field investigation did not reveal any riparian habitat. There were however, small isolated occurrences of standing or flowing water. These included the Lisbon Valley Spring, the Cenennial pit, the GTO pit and small isolated stock ponds.

A review of the literature and consultation with regulatory officials indicates that there are 5 species considered sensitive, that can occur within the Lisbon Valley area. These include; Depauperate daisy (*Erigeron mancus*), Alcove bog-orchid (*Habernaria zothecina*), Broad-leafed biscuitroot (*Lomatium latilobum*), Alcove rock-daisy (*Perityle specuicola*) and *Pedimelum aromaticum* var. *tuhyi* (no common name). None of these species were observed and only two appear to have proper habitat.

5.2 Wildlife

As with vegetation, wildlife inventories were performed to assist with the development of reclamation plans that are targeted for species that will utilize the area once the mine has closed. A preliminary reconnaissance for threatened, endangered, and sensitive species was also performed.

Overall, the presence of wildlife in the Lisbon Valley area was characterized as "limited" due to the lack of potential food and water sources.

There are 5 species of birds, 2 fish, 1 mammal, and 1 insect, that are listed as sensitive, which may occur within the project area according to consultations with federal and state agencies. These include:

American Peregrine Falcon

Bald Eagle
Mexican Spotted Owl
Ferruginous Hawk
Loggerhead Shrike
Black-footed Ferret
Great Basin Silverspot

5.3 Soils and Geochemistry

The soils of the project area were evaluated for availability as well as quality. The majority of the topsoils and subsoils have a good to fair rating for use as reclamation growth medium.

Because of the relatively good quality, it is recommended that at least 12 inches of topsoil be stockpiled for reclamation purposes. This material will have to be protected from erosion when stockpiled. In addition, micro nutrient levels should be maintained. This can be done by cover seeding the stockpiles while they are not in use.

The generation of acid is a concern that plagues many copper operations. Summo has carried out extensive studies to assess the potential for the waste rock to generate acid. Based upon this testing, the majority of the material demonstrates a high net neutralization potential. In addition, the waste rock demonstrates a high pH (paste) generally above 8.0, supporting the basic characteristic of the mine waste material.

5.4 Hydrology (Surface and Groundwater)

Surface Water - The project area receives approximately 12 inches of precipitation a year, with most of it occurring in the fall and winter months. For this reason, there is limited surface water in Lisbon Valley. There are no perennial streams that run through the proposed project area. The drainages are usually dry and only carry water as a result of extreme storm events. Water was

observed and sampled in two isolated springs, two stock watering ponds, the Centennial Pit, and from the GTO Pit.

Surface water quality samples were taken to compare the results with Utah drinking water standards. Primary drinking water standards are established for the protection of human health. Secondary standards provide guidance in evaluating the aesthetic qualities of drinking water. Dissolved antimony, sulfate, and gross alpha exceeded the primary standards.

Groundwater - Groundwater occurs beneath the project site as discontinuous aquifers and appears to be structurally controlled. This is evidenced by the erratic water elevations encountered, and the wide range of apparent saturated thicknesses that are present. Three water bearing units were established; the valley fill near the Sentinel Pit, the Burro Canyon/Brushy Basin aquifer, and the Mancos Shale aquifer in the Lower Lisbon Valley.

Pump testing of existing wells and analysis by Woodward-Clyde Consultants indicate that dewatering of the ore deposits to facilitate mining will provide a substantial portion of the water needed for dust control and ore processing. Additional water is available on the property, if needed.

Groundwater quality was established for the three water bearing units in and around the project area. These units are; the valley fill unit near the Sentinel Pit, the Burro Canyon/Brushy Basin aquifer in the Centennial/GTO Pit areas, and the Mancos Shale in Lower Lisbon Valley. An excellent baseline for permitting purposes has been initiated.

The valley fill aquifer analysis shows that gross alpha and gross beta exceed state primary drinking water standards, and dissolved manganese and TDS exceed secondary standards.

Analytical results from the Burro Canyon/Brushy Basin aquifer reveal that standards for gross alpha, gross beta, sulfate, TDS, antimony, dissolved zinc, and dissolved manganese exceed primary and secondary standards.

Results from the Mancos Shale show that the groundwater exceeds primary standards for sulfate, TDS, gross alpha, and gross beta.

Summo will continue monitoring to establish an acceptable baseline for permitting purposes. This will be utilized for comparison in determining compliance once the facility is permitted, constructed and in operation.

5.5 Cultural, Historical and Archaeological

Cultural, historical, and archaeological surveys were initiated in the spring of 1995. These inventories are being performed by Metcalf Archaeological Consultants (MAC) who has performed numerous inventories and studies on public lands (BLM) in Utah.

The surveys have been designed to review the existing literature and perform a preliminary inventory to highlight potential fatal flaws which could inhibit the permitting of the project. This activity is complete.

The second phase of work is the detailed field investigation of the proposed project facilities. This phase calls for very labor intensive walking and recording of sites that may have potential to be significant enough for follow-up investigation and documentation. MAC is approximately three quarters of the way complete with this exercise. To date, field investigations have discovered 68 individual sites throughout the project area. Of these, 45 have been designated as "nonsignificant," while 5 have been designated as clearly important, or "significant." The remaining 23 sites fall within a grey area and will have to be looked into in more detail.

Sites, which are considered to be significant, will be handled in one of two ways. The first will be through avoidance, which can be accomplished by relocating a portion of the facility that may be impacted. The second way will be by mitigating the potential impact, by information data gathering or a detailed site study.

5.6 Geotechnical

The geotechnical investigation is currently being performed by D.P. Engineering of Englewood CO. The purpose of these studies is to determine the geotechnical characteristics of the leach pad area, the waste dump areas, and the proposed process areas (including the crusher site). In addition, the information will be used for backup and design calculation and will be provided to support permitting efforts on the federal (BLM) and state (Dept. of Environmental Quality) levels.

5.7 Air and Meteorological

Detailed air and meteorological baselines have not been established for the Lisbon Valley Project. There are existing data bases from the surrounding area, that can and have been utilized. However, the quality of this information is questionable. For this reason, Summo has hired an independent contractor (Air Sciences) to begin collecting data.

Air Services will assist with the development of baseline information that will satisfy requirements on the federal and state level.

5.8 Socioeconomics

One remaining baseline that will need to be established for permitting and project planning purposes is the socioeconomic baseline. The purpose of this baseline is to determine whether or not there are adequate resources for schooling, housing, sewage treatment, water availability, etc., to handle a new mine and workforce needs. This baseline will be established during the NEPA process.

6.0 RECLAMATION AND CLOSURE

Reclamation and closure of mining facilities has gone beyond the art and landscaping stage that was in practice in the 1980's. Today, operations are incorporating existing land uses and

developing reclamation plans that begin before ground is ever disturbed.

The primary goals of the Lisbon Valley reclamation plan will be to ensure long term protection of the environment and to return disturbed areas to the suitable post mining land uses that currently exist at the project area. Existing land uses that are currently emphasized are; wildlife habitat, livestock grazing, and mineral development. Related to this, the reclamation will minimize public safety hazards and, to the extent practicable, diminish the appearance of man made structures.

Reclamation of the facility will also mitigate the adverse effects of modern day mining activities that have been left unreclaimed. As mentioned earlier, there is currently approximately 85 acres of unreclaimed mining activities at the project site.

Reclamation at Lisbon Valley will be divided into two major categories: concurrent/interim reclamation practices (those activities that are conducted during active mining) and final reclamation (closure).

6.1 Concurrent/Interim Reclamation

The activities associated with concurrent reclamation include the following measures

- During site preparation, disturbed areas will be contoured to minimize erosion and provide adequate drainage. Sediment traps will be installed down gradient from disturbed areas. Erosion control structures, such as rock check dams, straw bales and silt fences will be installed to prevent the accelerated erosion and sedimentation of surface drainages.
- Salvageable growth medium will be removed from the areas to be developed or disturbed. The soils investigation confirms that more than enough material is available for reclamation purposes

- During the life of the mine, areas no longer needed will be reclaimed and revegetated with plant species that meet the proposed post mining land use. This will eliminate and/or minimize the requirement for all disturbed areas to remain disturbed during the entire mine life.
- The development of a test plot revegetation program is perhaps one of the most beneficial interim reclamation tools a company can utilize. Any company can propose a revegetation plan that spells out preferred species. However, it is important to determine whether or not these species will in fact grow in these specific conditions. It is imperative that a series of test plots be developed that will simulate various conditions of the mine site at closure. Typical conditions assessed include; species composition, fertilizer requirements, topsoil requirements, slope and aspect, etc. It is better to know success capability prior to large expenditures, rather than after the fact.

6.2 Final Reclamation

As stated earlier, the intent of reclamation at the Lisbon Valley Project will be to return the land to similar land uses that exist currently. Through proper planning and site management, the opportunity to improve certain conditions exist. Rubble habitat at the base of waste dumps offer cover sites for small mammals. Cliff habitat associated with pit walls offer an excellent habitat base for raptors.

The site specific reclamation activities at Lisbon Valley, can be broken down by distinct facilities, ie. pits, roads, overburden dumps, etc. The specific reclamation at these facilities is described in further detail below.

6.2.1 Open Pits

To begin with, it is imperative that public access to open pits be blocked. This will be done by placing rock berms and/or fences. These fences and berms be marked to provide adequate notice to the public. Summo will design these structures in cooperation with the BLM and MSHA.

No revegetation of bench walls is proposed. Once mining is complete pit walls and benches will be allowed to fill with rubble. Haul roads, which access the bottom of the pit, will be scarified, topsoiled, seeded, and if necessary fertilized to promote healthy vegetation stands.

Dewatering of the pits will stop. Ponds may form in the lower levels of some of the pits, depending upon whether the inflow of groundwater and precipitation exceed the high evaporation rates experienced in the area.

Besides berming and fencing, the pit entrances will be planted with indigenous tree species (Pinyon Juniper) in order to screen the visible impacts of the open pit.

6.2.2 Overburden Disposal Areas

Uneconomical material is usually referred to as waste rock or overburden. The Lisbon Valley Project as currently designed, calls for four (4) individual disposal sites which are designed to minimize haul distance and cost.

The intent with the construction of the dumps is to build them such that the side slope with intermediate benches is constructed at an angle of 2.5:1. With this design, the requirement of grading these slopes will be relatively easier than if the dumps were designed at angle of repose and they had to be graded from top to bottom.

The flattened top surfaces of the dumps will be ripped to a depth of ~4 ft. Scarified to form a roughened seedbed. The surface would be contoured to encourage infiltration rather than ponding. Undulations will serve to enhance revegetation efforts.

Following grading, growth medium will be applied at optimum thicknesses. The areas will then be seeded with an approved grass, forb and shrub mix.

6.2.3 Heap Leach Pads

The closure of the leach pad is designed to minimize leachate discharge by preventing water from entering the leach pad from surface percolation and groundwater infiltration. In addition, special reclamation techniques will enhance runoff and evapotranspiration of the heap surface.

At the end of ore loading of the pad, the final economic copper will be recovered. Following this, the pad will be allowed to drain down. Full scale testing of the remaining material will then begin. While this is going on, the solution inventory will gradually be reduced by the use of high evaporation sprinklers.

Once the heap closure chemical parameters are met, the pad will be recontoured. The slopes of the pad will then be reduced to a slope of 2.5:1. The surface of the pad will be prepped to minimize infiltration. This will either be done by the placement of compacted soils, or the use of lime or other commercially available products. On top of this prepared layer, overburden/waste rock will be placed to provide for an adequate root zone. Growth medium will be applied on top of this.

The area will then be revegetated with a seed mix of grasses, forbs, and shallow root shrubs. Trees will be eliminated from this revegetation effort, so that the integrity of the surface of the heap is not jeopardized.

Other components of the heap leach pad closure include the removal of piping and the final design of the facility to allow for rain and run off to bypass the leach pad area.

6.2.4 Solution and Stormwater Ponds

The solution and stormwater ponds will be some of the last facilities reclaimed at the site, in order to allow for solution containment while reclamation occurs at other facilities. Reclamation of the pond will involve evaporation and, if necessary, treatment of process and stormwater solutions. Following this the liners will be folded in. Overburden will hauled in and placed over the liner system and the area will be graded and revegetated.

6.2.5 Structures

All equipment will be removed. No chemical or electrical hazards will remain after closure. All buildings and other facilities will be dismantled and removed from the site or buried.

Foundations will either be removed and buried elsewhere on the site or buried in place. Facility areas will be contoured to create a natural appearance and to prevent erosion. Growth medium will be applied, and seeding will then take place. Fertilizer will be applied at a rate that is dependent upon site specific soil conditions.

6.2.6 Roads, Conveyor Routes, and other Ancillary Facilities

Roads and other facilities not deemed essential by the BLM will also be reclaimed in a manor that is consistent with what has been proposed for other facilities at the Lisbon Valley Project. Compacted areas will be ripped, then graded to conform to the surrounding terrain. Growth medium will then be applied. The area will then be seeded with an approved grass, forb, and shrub mixture, and fertilized with an appropriate mixture and rate.

6.3 Post Closure Monitoring and Care

Summo is committed to ensuring that reclamation is successful at the project site. Permits issued from the various agencies will require monitoring to ensure compliance with permit standards. This monitoring will also serve as a tool for determining successful reclamation. At a minimum, Summo is committed to monitoring site conditions for at least two years following site reclamation.

ATTACHMENT 1

EXHIBIT "A"
Lisbon Valley Project

Unpatented claims situate in San Juan County, Utah
Township 30 South, Ranges 25 and 26 East
and Township 31 South, Range 26 East

<u>Claim Name</u>	<u>Book/Page</u>	<u>Twn/Rge/Sec</u>	<u>BLM Serial No.</u> <u>UMC</u>
Camel	25/453	30S/25E/25,26	129728
Amended	231/261		
Cat	25/454	30S/25E/25,26	129729
Amended	231/262		
Colt	25/455	30S/25E/25,26	129730
Amended	231/263		
Cougar	25/455	30S/25E/25,26,35	129731
Amended	231/263		
Cow	25/454	30S/25E/25,26	129732
Amended	231/262		
Coyote	25/456	30S/25E/35	129733
Amended	231/264		
Cub	25/456	30S/25E/35	129734
Amended	231/264		
Sentinal 1	47/44	30S/25E/25	129718
Amended	231/256		
Sentinal 2	47/45	30S/25E/25	129719
Amended	231/257		
Sentinal 3	47/45	30S/25E/25	129720
Amended	231/257		
Sentinal 4	47/46	30S/25E/25,26	129721
Amended	231/258		
Sentinal 5	47/46	30S/25E/25	129722
Amended	231/258		
Sentinal 6	47/47	30S/25E/25,26	129723
Amended	231/259		
Sentinal 7	47/47	30S/25E/25	129724
Amended	231/259		
Sentinal 8	47/48	30S/25E/25,26	129725
Amended	231/260		
Sentinal 9	47/48	30S/25E/25	129726
Amended	231/260		
Sentinal 10	47/49	30S/25E/25,26	129727
Amended	231/261		
Climax 1	R2/382	30S/25E/25	129763
Amended	41/229		
Amended	487/186		
Climax 2	R2/382	30S/25E/25	129764
Amended	41/230		
Amended	487/186		
Alpha 1	270/83	30S/25E/25	129765
Alpha 2	270/83	30S/25E/25	129766
Alpha 3	270/84	/25E/25	129767
Alpha 4	270/84	30S/25E/25	129768
Alpha 5	270/85	30S/25E/25	129769
Alpha 6	270/85	30S/25E/25	129770
Alpha 7	270/86	30S/25E/25	129771
Alpha 8	270/86	30S/25E/25	129772

<u>Claim Name</u>	<u>Book/Page</u>	<u>Twn/Rge/Sec</u>	<u>BLM Serial No.</u> <u>UMC</u>
CW 1	510/62	30S/25E/25,26,35	129811
CW 2	510/63	30S/25E/25	129812
CW 3	510/64	30S/25E/25,26	129813
CW 4	510/65	30S/25E/25	129814
CW 5	510/66	30S/25E/25	129815
CW 6	510/67	30S/25E/25,26	129816
CW 7	510/68	30S/25E/25	129817
CW 8	510/69	30S/25E/25	129818
CW 9	510/70	30S/25E/25	129819
CW 10	510/71	30S/25E/25	129820
CW 11	510/72	30S/25E/25	129821
CW 12	510/73	30S/25E/25	129822
Amended	521/9		
CW 13	510/74	30S/25E/25	129823
CW 14	510/75	30S/25E/25,26	129824
CW 15	511/596	30S/25E/25	129825
CW 16	511/597	30S/25E/25	129826
CW 19	511/598	30S/25E/25	129827
Amended	521/8		
CW 22	511/599	30S/25E/24,25	129828
KWR 1	487/130	30S/25E/26	129789
KWR 2	487/131	30S/25E/26	129790
KWR 3	487/132	/25E/26	129791
KWR 4	487/133	30S/25E/26	129792
KWR 5	487/134	30S/25E/26	129793
KWR 6	487/135	30S/25E/26	129794
KWR 7	487/136	30S/25E/26	129795
KWR 8	487/137	30S/25E/26	129796
KWR 9 Fractin	501/345	30S/25E/26	129797
KWR 10	501/346	30S/25E/23,26	129798
KWR 11 Fraction	501/347	30S/25E/25	129799
KWR 11 Fraction	521/469	30S/25E/25	129802
KWR 12 Fraction	501/348	30S/25E/25	129800
KWR 13 Fraction	501/349	30S/25E/25	129801
G. M. Wallace	484/636	30S/25E/25	129829
Fraction (Amended)	487/129		
Nu Zuni 45	707/500	30S/25E/35	330150
Nu Zuni 46	707/501	30S/25E/35	330151
Nu Zuni 47	707/502	30S/25E/35	330152
Oxide 1	707/734	30S/25E/23,26	327776
Oxide 2	707/735	30S/25E/23,26	327777
Oxide 3	705/119	30S/25E/23	327778
Oxide 4	705/120	30S/25E/23,26	327779
Oxide 5	705/121	30S/25E/23	327780
Oxide 6	705/122	30S/25E/23,26	327781
Oxide Fraction	708/345	30S/25E/23,26	331632
CWG Fraction	517/275	30S/25E/26	129786
CWG Fraction 1	517/276	30S/25E/26	129787
CWG Fraction 2	517/277	30S/25E/26	129788
CD 1	509/508	30S/25E/25,26	129773
CD 2 Fraction	509/509	30S/25E/25	129774
CD 3 Fraction	509/510	30S/25E/25,36	129775
CD 4 Fraction	509/511	30S/25E/25,36	129776
		30S/26E/30,31	
CD 5 Fraction	509/512	30S/25E/25	129777
CD 6 Fraction	509/550		129737
CD 7A Amended	724/350	30S/25E/25	349339

<u>Claim Name</u>	<u>Book/Page</u>	<u>Twn/Rge/Sec</u>	<u>BLM Serial No.</u> <u>UMC</u>
CD 8A	722/134	30S/25E/25	349340
CD 9A Amended	724/352	30S/25E/25	349341
CD 10A Amended	724/354	30S/25E/25	349342
Globe 1	486/16	30S/25E/26	129782
Amended	489/392		
Globe 2	486/17	30S/25E/26	129783
Amended	489/393		
Globe 9	486/24	30S/25E/23	129784
Amended	489/400		
Globe 10	486/25	30S/25E/23,26	129785
Amended	489/401		
Security 3	377/402	30S/26E/31	140827
Security 5	377/403	30S/26E/31	140607
Security 7	377/404	30S/26E/31	140608
Security 9	377/405	30S/26E/31	140609
Security 11	377/406	30S/26E/31	140610
Security 14	377/407	31S/26E/6	140611
Security 15	377/408	31S/26E/6	140612
Security 16	377/409	31S/26E/6	140613
Security 18	377/410	31S/26E/6	140614
Security 19	377/411	31S/26E/6	140615
Security 20	377/412	31S/26E/6	140616
Security 25	377/413	31S/26E/6	140617
Security 26	377/414	31S/26E/5,6	140618
Security 27	377/415	30S/26E/31	140619
Security 28	377/416	30S/26E/31	140620
Security 29	377/417	30S/26E/31	140621
Security 30	377/418	30S/26E/31	140622
Security 31	377/419	30S/26E/31	140623
Security 32	377/420	30S/26E/31	140624
Security 33	377/421	30S/26E/31	140625
Security 34	377/422	30S/26E/31	140626
Security 35	377/423	30S/26E/31	140627
Security 36	377/424	30S/26E/31	140628
Security 37	377/425	30S/26E/31	140629
Security 38	377/426	30S/26E/31	140630
Security 39	377/427	30S/26E/31	140631
Security 40	377/428	30S/26E/31	140632
Security 41	377/429	30S/26E/31	140633
Security 42	377/430	30S/26E/31	140634
Security 43	377/431	30S/26E/31	140635
Security 44	377/432	30S/26E/31	140636
Security 45	377/433	30S/26E/31	140637
Security 46	377/434	30S/26E/31	140638
Security 47	377/435	30S/26E/31	140639
Security 48	377/436	30S/26E/31	140640
Security 49	378/341	30S/26E/31	140641
Security 50	378/342	30S/26E/31	140642
Security 51	378/343	30S/26E/31	140643
Security 52	378/344	30S/26E/31	140644
Security 53	378/345	30S/26E/31	140645
Security 54	378/346	30S/26E/31	140646
Security 55	378/347	30S/26E/31	140647
Security 56	378/348	30S/26E/31	140648

EXHIBIT "B"
Lisbon Valley Project

Unpatented claims situate in San Juan County, Utah
Township 30 South, Ranges 25 and 26 East

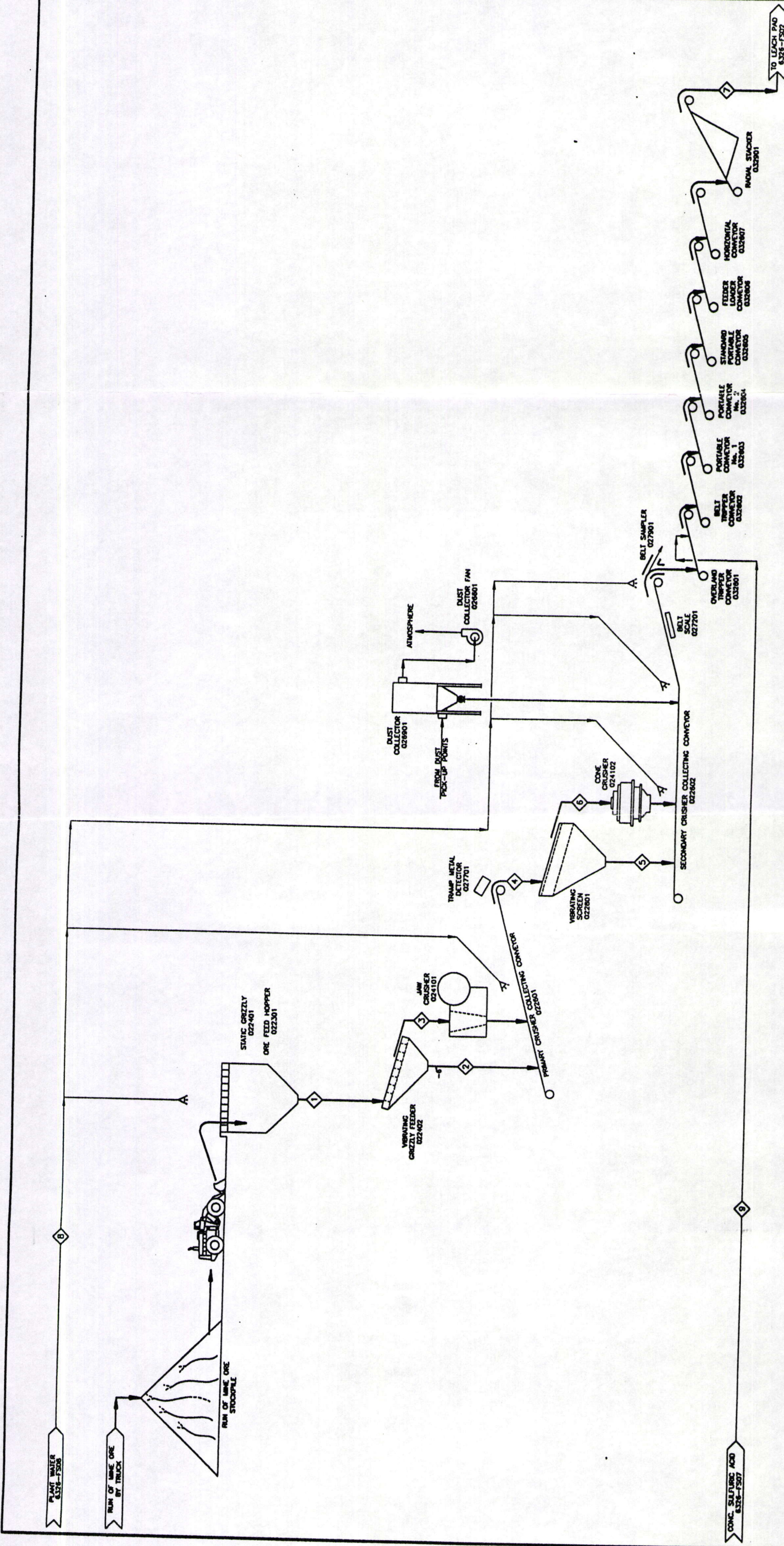
<u>Claim Name</u>	<u>Book/Page</u>	<u>Twn/Rge/Sec</u>	<u>BLM Serial No.</u> <u>UMC</u>
STEP 1	733 470	30S/25E/27	354577
STEP 2	733 472	30S/25E/27	354578
STEP 3	733 474	30S/25E/27	354579
STEP 4	733 476	30S/25E/27	354580
STEP 5	733 478	30S/25E/27	354581
STEP 6	733 480	30S/25E/27	354582
STEP 7	733 482	30S/25E/27	354583
STEP 8	733 484	30S/25E/27	354584
STEP 9	733 486	30S/25E/27	354585
STEP 10	733 488	30S/25E/27	354586
STEP 11	733 490	30S/25E/27	354587
STEP 12	733 492	30S/25E/27	354588
STEP 13	733 494	30S/25E/27	354589
STEP 14	733 496	30S/25E/27	354590
STEP 15	733 498	30S/25E/27	354591
STEP 16	733 500	30S/25E/27	354592
STEP 17	733 502	30S/25E/27	354593
STEP 18	733 504	30S/25E/27	354594
STEP 19	733 506	30S/25E/27&34	354595
STEP 20	733 508	30S/25E/27&34	354596
STEP 21	733 510	30S/25E/27&34	354597
STEP 22	733 512	30S/25E/27&34	354598
STEP 23	733 514	30S/25E/27&34	354599
STEP 24	733 516	30S/25E/27&34	354600
STEP 25	733 518	30S/25E/27&34	354601
STEP 26	733 520	30S/25E/27&34	354602
STEP 27	733 522	30S/25E/27,28,	354603
33&34			
STEP 28	733 524	30S/25E/35	354604
STEP 29	733 526	30S/25E/35	354605
STEP 30	733 528	30S/25E/35	354606
STEP 31	733 530	30S/25E/35	354607
STEP 32	733 532	30S/25E/35	354608
STEP 33	733 534	30S/25E/35	354609
STEP 34	733 536	30S/25E/35/36	354610
RP 21	733 305	30S/26E/30	354543
RP 22	733 306	30S/26E/30	354544
RP 23	733 307	30S/26E/30	354545
RP 24	733 308	30S/26E/30	354546
RP 28	733 309	30S/26E/30	354547
RP 29	733 310	30S/26E/30	354548
RP 30	733 311	30S/26E/30	354549
RP 31	733 312	30S/26E/30	354550
RP 32	733 313	30S/26E/30	354551
RP 33	733 314	30S/26E/30	354552
RP 36	733 315	30S/26E/30	354553
RP 37	733 316	30S/25E/25 30S/26E/30	354554

RP 38	733 317	30S/25E/25 30S/26E/30	354555
RP 39	733 318	30S/25E/25 30S/26E/30	354556
RP 40	733 319	30S/25E/25 30S/26E/30	354557
RP 41	733 320	30S/25E/25 30S/26E/30	354558
RP 42	733 321	30S/25E/25 30S/26E/30	354559
RP 46	733 322	30S/25E/24&25	354560
RP 47	733 323	30S/25E/25	354561
RP 48	733 324	30S/25E/25	354562
RP 49	733 325	30S/25E/25	354563
RP 50	733 326	30S/25E/25	354564
RP 51	733 327	30S/25E/25	354565
RP 52	733 328	30S/25E/25	354566
RP 53	733 329	30S/25E/25	354567
RP 54	733 330	30S/25E/25	354568
RP 58	733 331	30S/25E/24	354569
RP 59	733 332	30S/25E/24&25	354570
RP 60	733 333	30S/25E/25	354571
RP 61	733 334	30S/25E/25	354572
RP 66	733 335	30S/25E/24	354573
RP 67	733 336	30S/25E/24&25	354574
RP 74	733 337	30S/25E/23&24	354575
RP 75	733 338	30S/25E/23,24 25,26	354576
Lady Buff 1	743 306	30S/25E/26	356889
Lady Buff 2	743 309	30S/25E/26	356890
Lady Buff 3	743 312	30S/25E/23,26	356891
Lady Buff 4	743 315	30S/25E/23,26	356892
Lady Buff 5	743 318	30S/25E/23	356893
Lady Buff 6	743 321	30S/25E/22,23,26	356894
Lady Buff 7	743 324	30S/25E/23	356895
Lady Buff 8	743 327	30S/25E/22,23	356896
Lady Buff 9	743 330	30S/25E/23	356897
Lady Buff 10	743 333	30S/25E/22,23	356898
Lady Buff 11	743 336	30S/25E/23	356899
Lady Buff 12	743 339	30S/25E/22,23	356900
Lady Buff 13	743 342	30S/25E/22,23	356901
GKS 1			
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GKS 47

STREAM NO.	1	2	3	4	5	6	7	8	9
DESCRIPTION	WATER	GRIZZLY FEED	GRIZZLY FEED	WATER	WATER	WATER	WATER	WATER	WATER
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
WATER	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0

NOTE:
1. OPERATING SCHEDULE: 18-HR/DAY, 7 DAYS/WEEK



DATE		BY	CHECK	DESCRIPTION OF REVISION	DATE	BY	CHECK
02/13/75		JAP		ADD CONVEYOR SYSTEM	02/13/75	JAP	
02/13/75		JAP		GENERAL REVISION	02/13/75	JAP	
02/13/75		JAP		PRELIMINARY	02/13/75	JAP	
02/13/75		JAP		DESCRIPTION OF REVISION	02/13/75	JAP	

ROBERTS & SCHAEFER
ENGINEERS AND ARCHITECTS
CHICAGO-SALT LAKE CITY

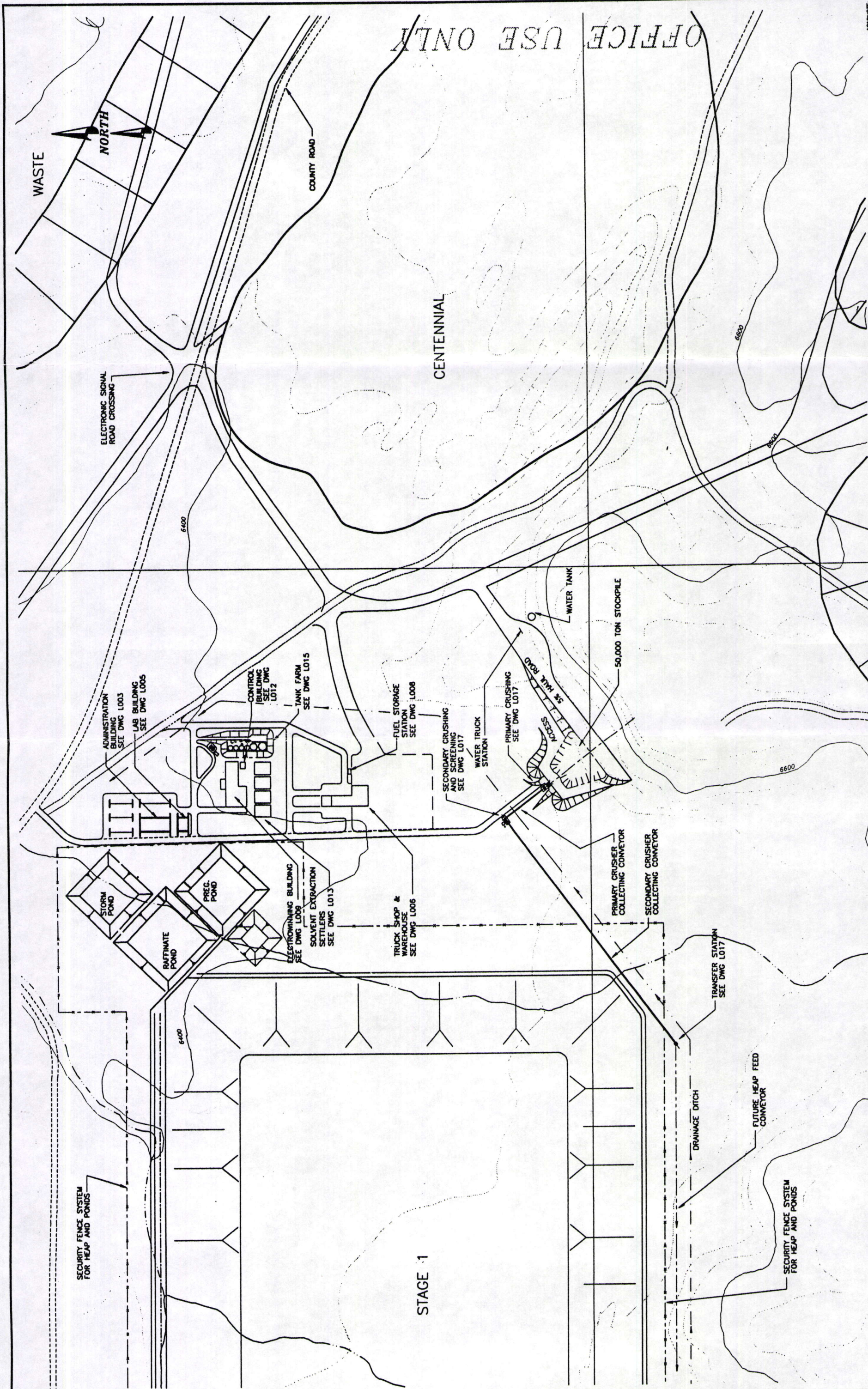
SUMMO U.S.A. CORPORATION

PROCESS FLOW DIAGRAM
AREA 02 & 03 CRUSHING AND SCREENING
USBON VALLEY COPPER PROJECT
CAN HIAN CO. 117411

6326-FS01

2/13/75

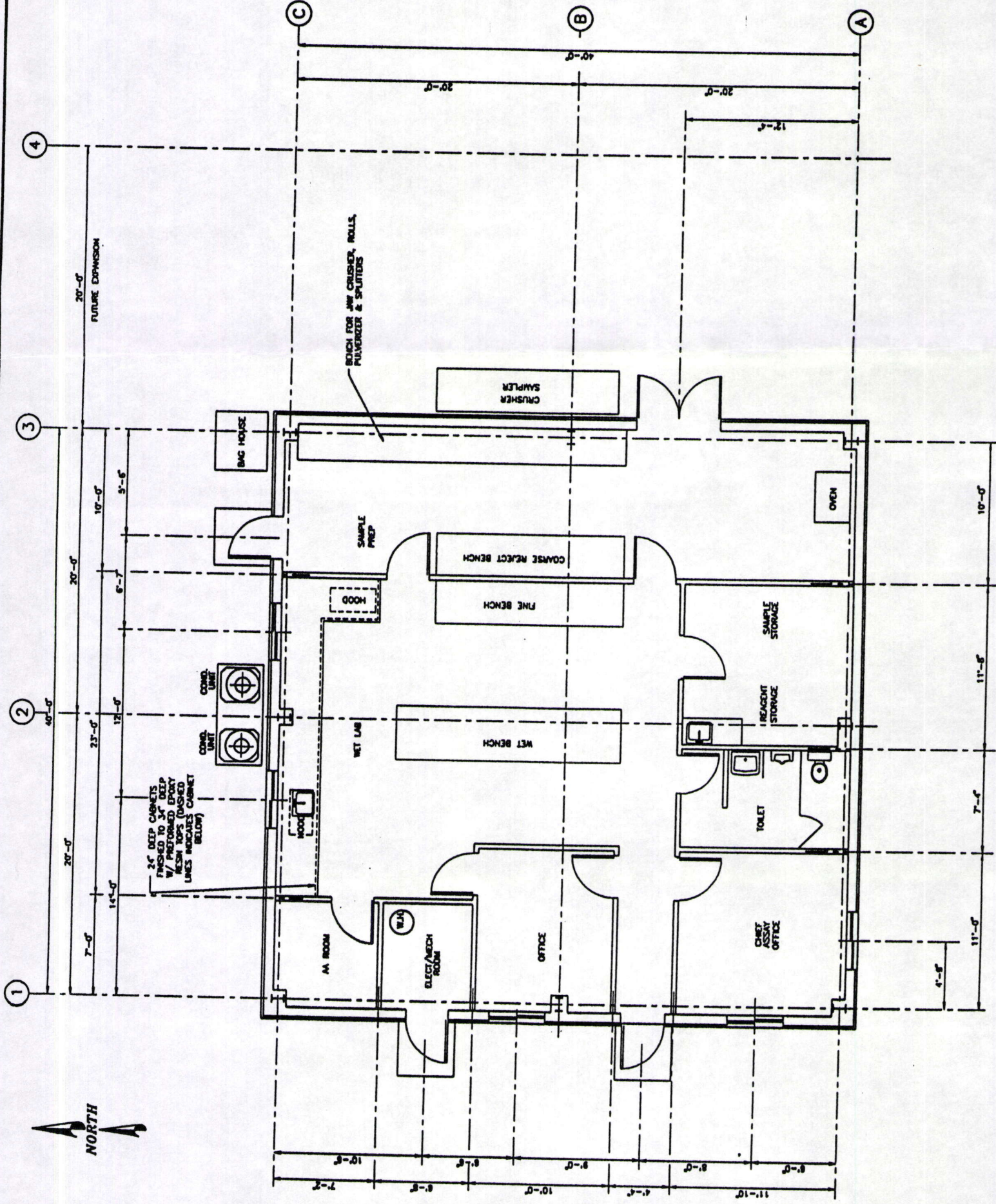
6326-FS07



REVISION		DATE		BY		CHECK		DESCRIPTION OF REVISION	
		07/27/95	JAP					UPDATED HEAP AND PONDS	
		05/28/95	TRB					PRELIMINARY	

PROJECT		DATE		BY		CHECK		DESCRIPTION	
SUMMO U.S.A. CORPORATION		2/20/95		JAP				PLANT SITE PLAN	
ROBERTS & SCHAEFER		6326						USBON VALLEY COPPER PROJECT	
ENGINEERS AND CONTRACTORS		CHICAGO-SALT LAKE CITY						SAN JUAN CO. UTAH	
PROJECT NO.		6326-L002						DRAWING NO.	

NOTES:
1. ALL DIMENSIONS ARE IN FEET AND INCHES.
2. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.



LABORATORY BUILDING

NOTE:

1. DIMENSIONS SHOWN FOR INTERIOR FRAMING ARE TO CENTER OF STUDS UNLESS OTHERWISE NOTED

REV	DATE	BY	CHECK	DESCRIPTION OF REVISION

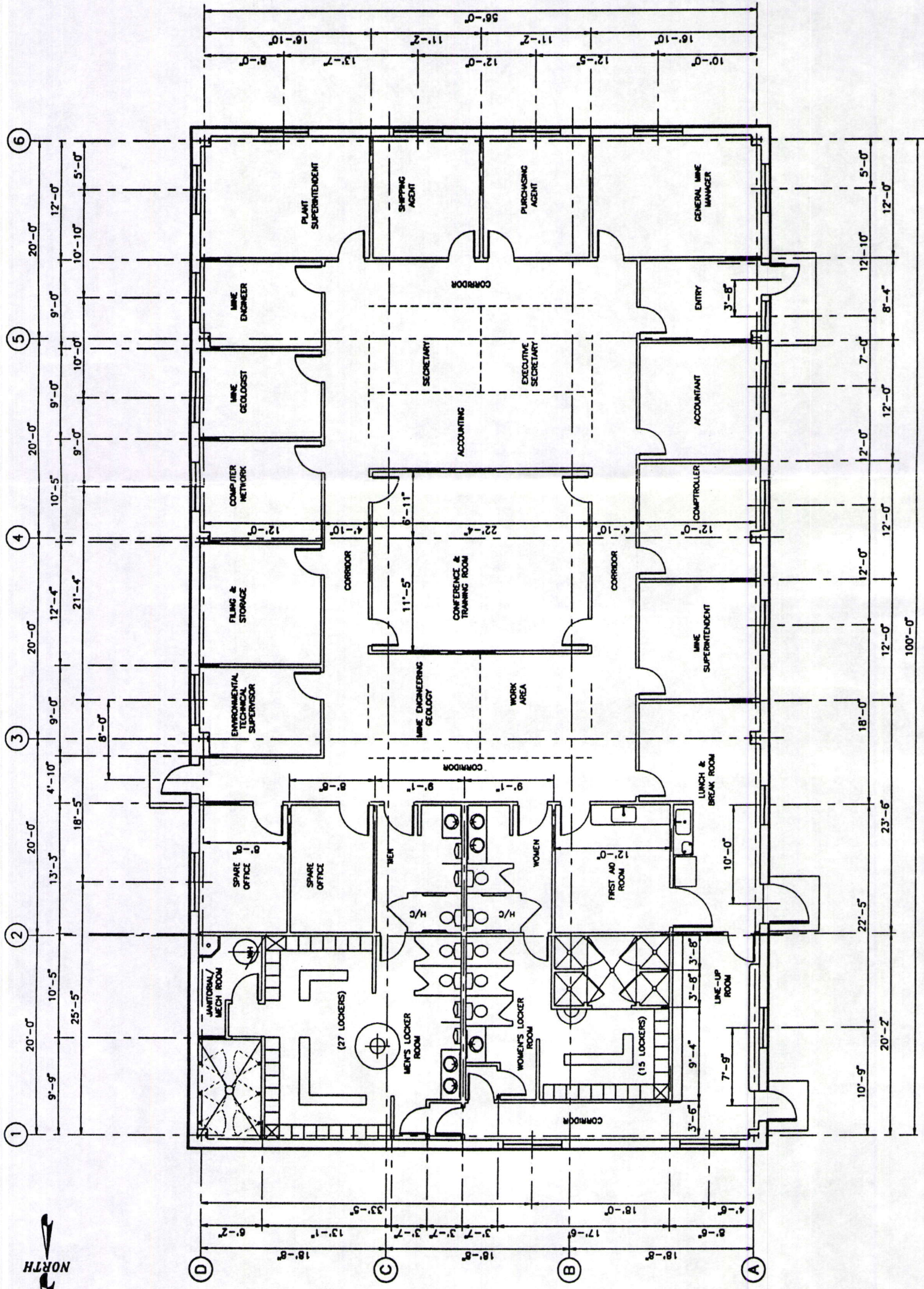


ROBERTS & SCHAEFER
INCORPORATED
CHICAGO-SALT LAKE CITY
6326

SUMMO U.S.A. CORPORATION

LABORATORY PLAN
AT SX / EW AREA
USBON VALLEY COPPER PROJECT
SAN JUAN CO. UTAH

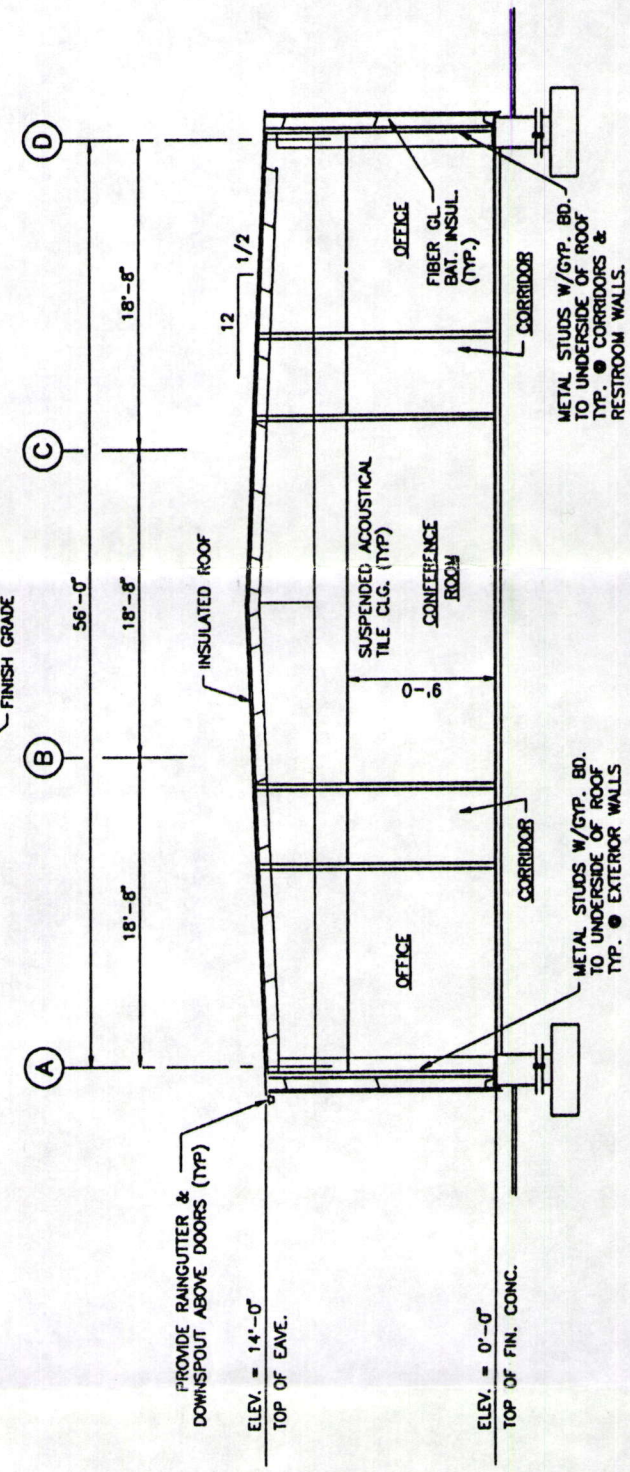
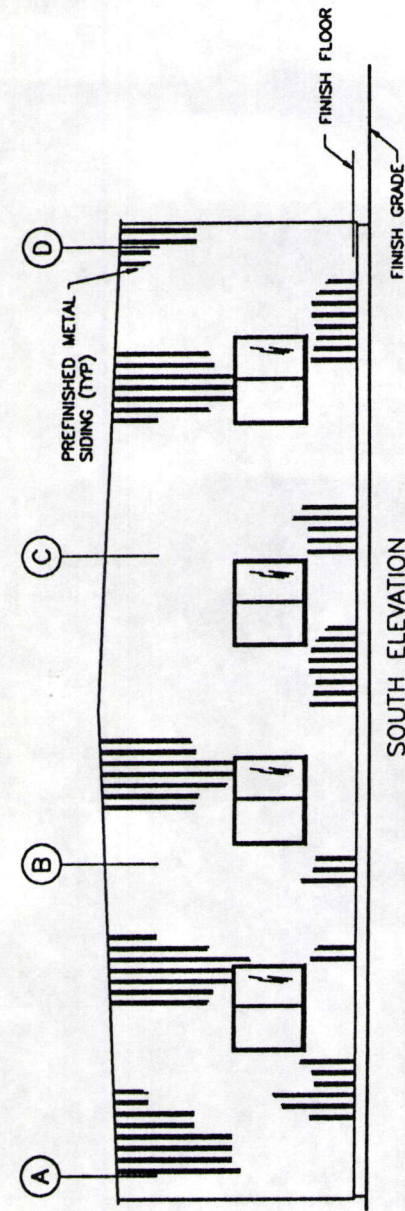
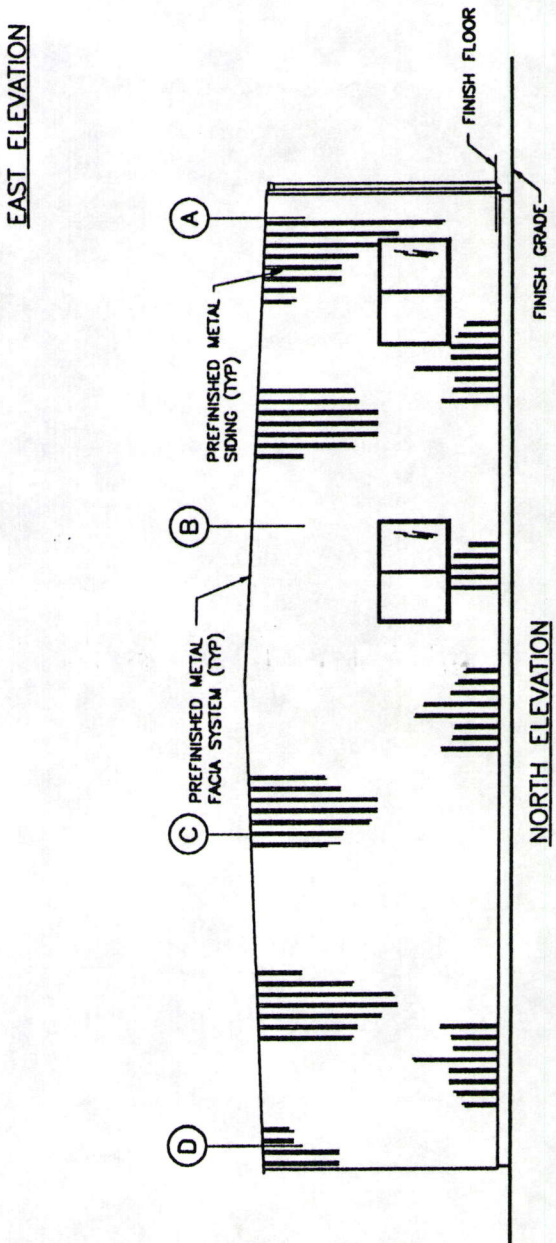
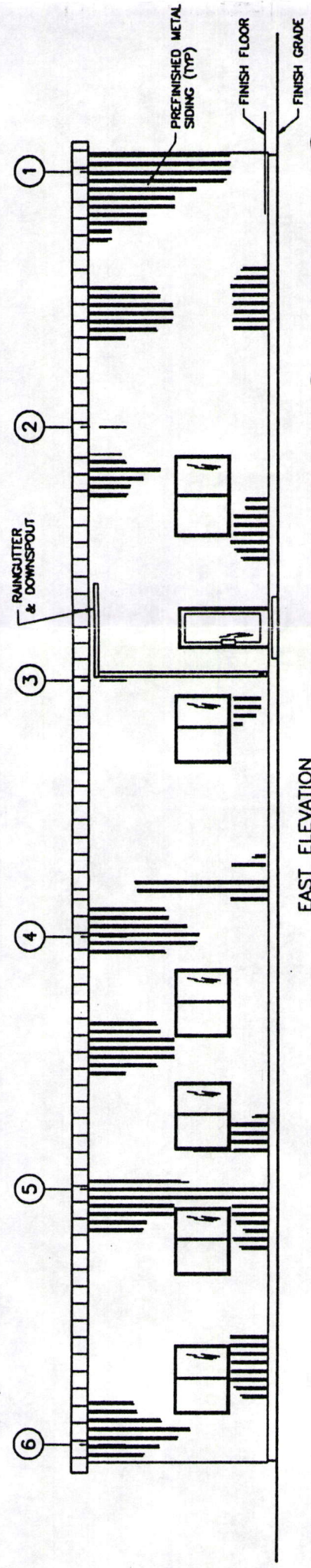
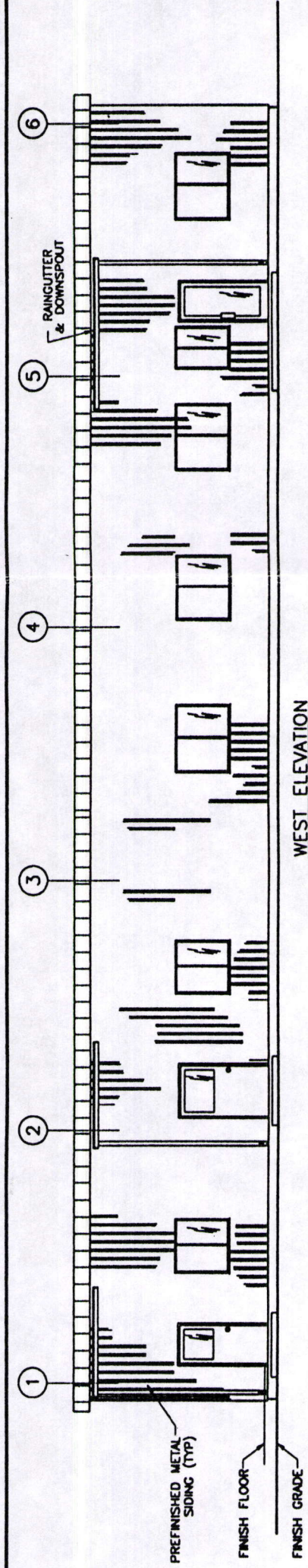
ACCOMPLISH
1/15-1-07
2/24/95
6326-L005



ADMINISTRATION BUILDING

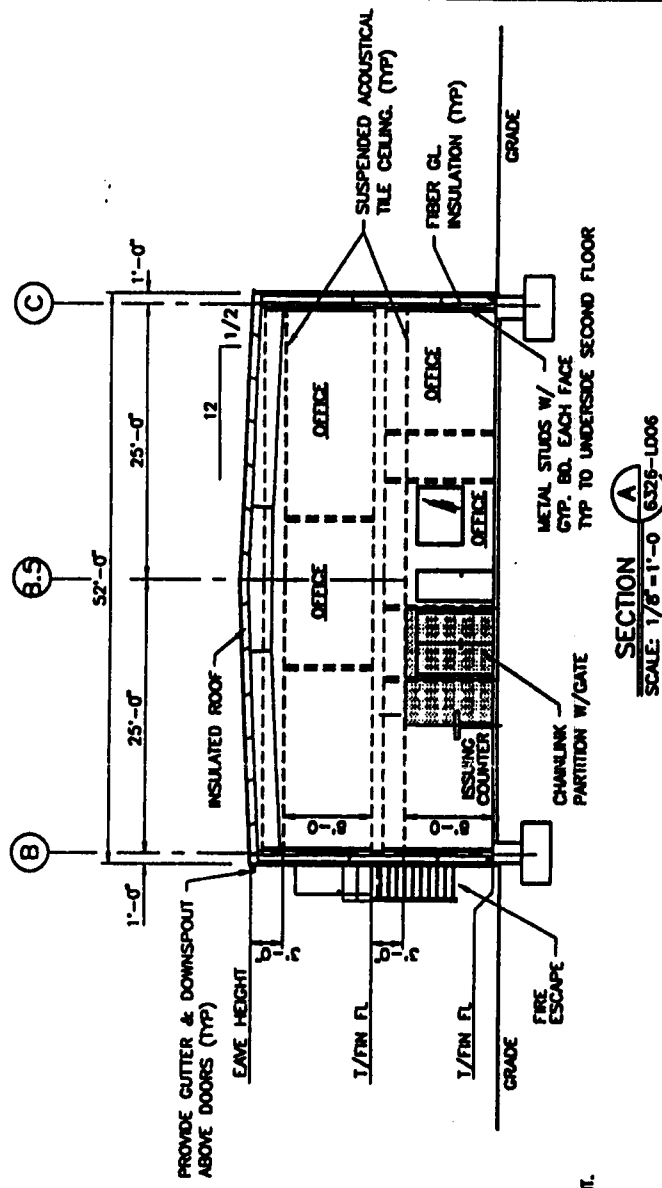
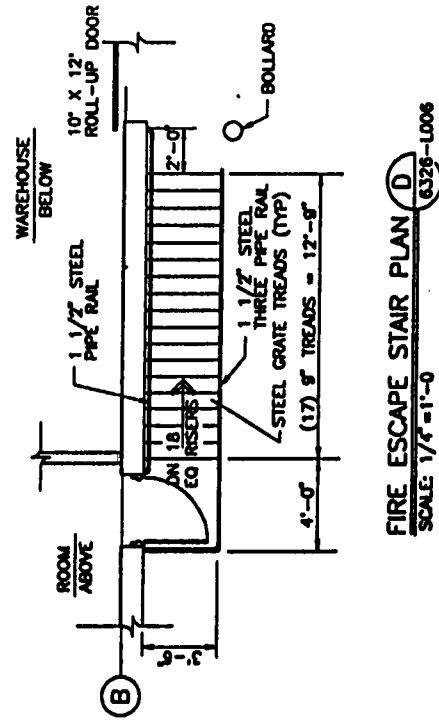
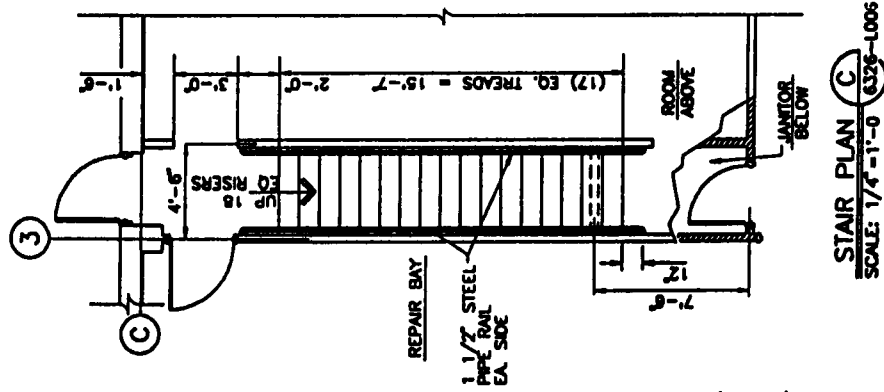
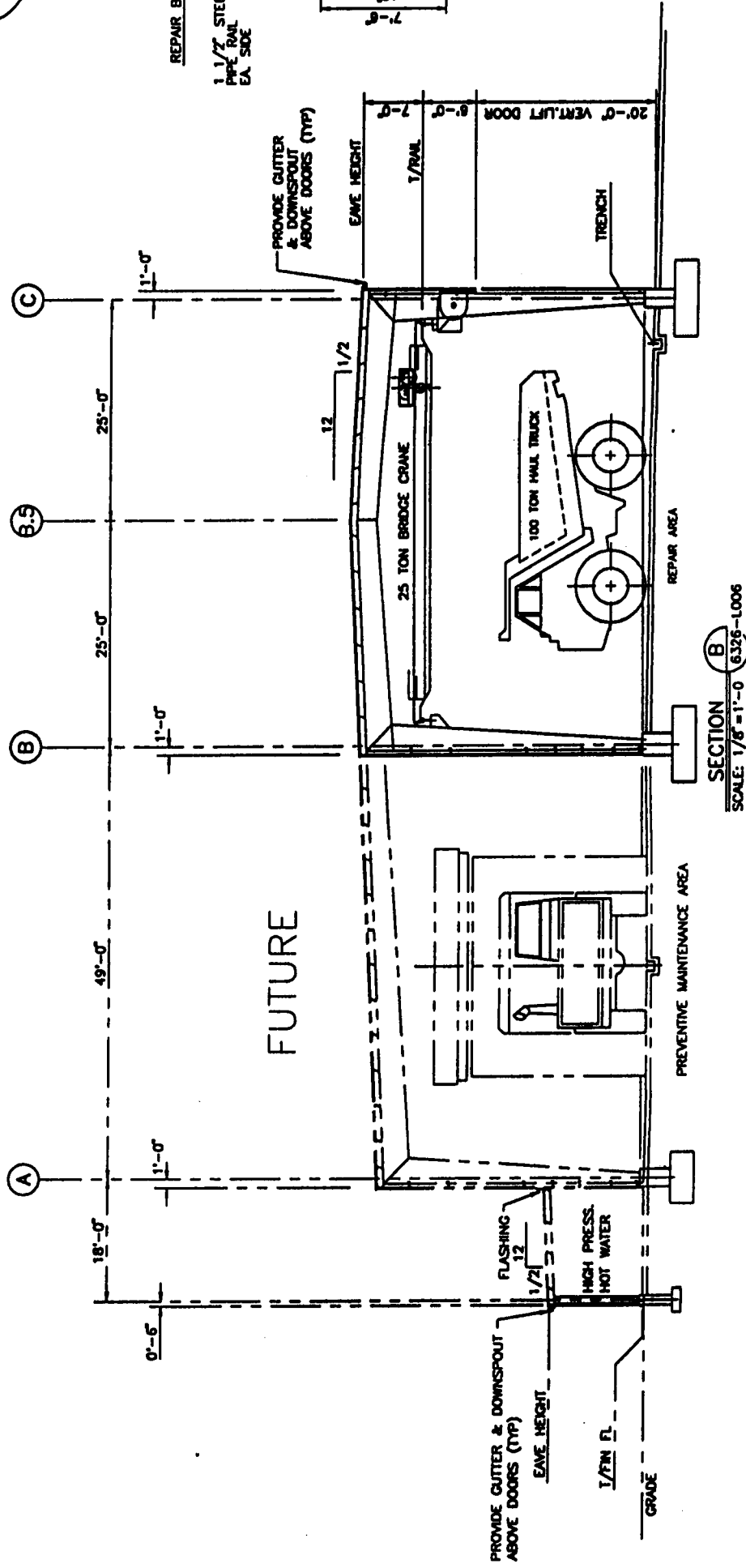
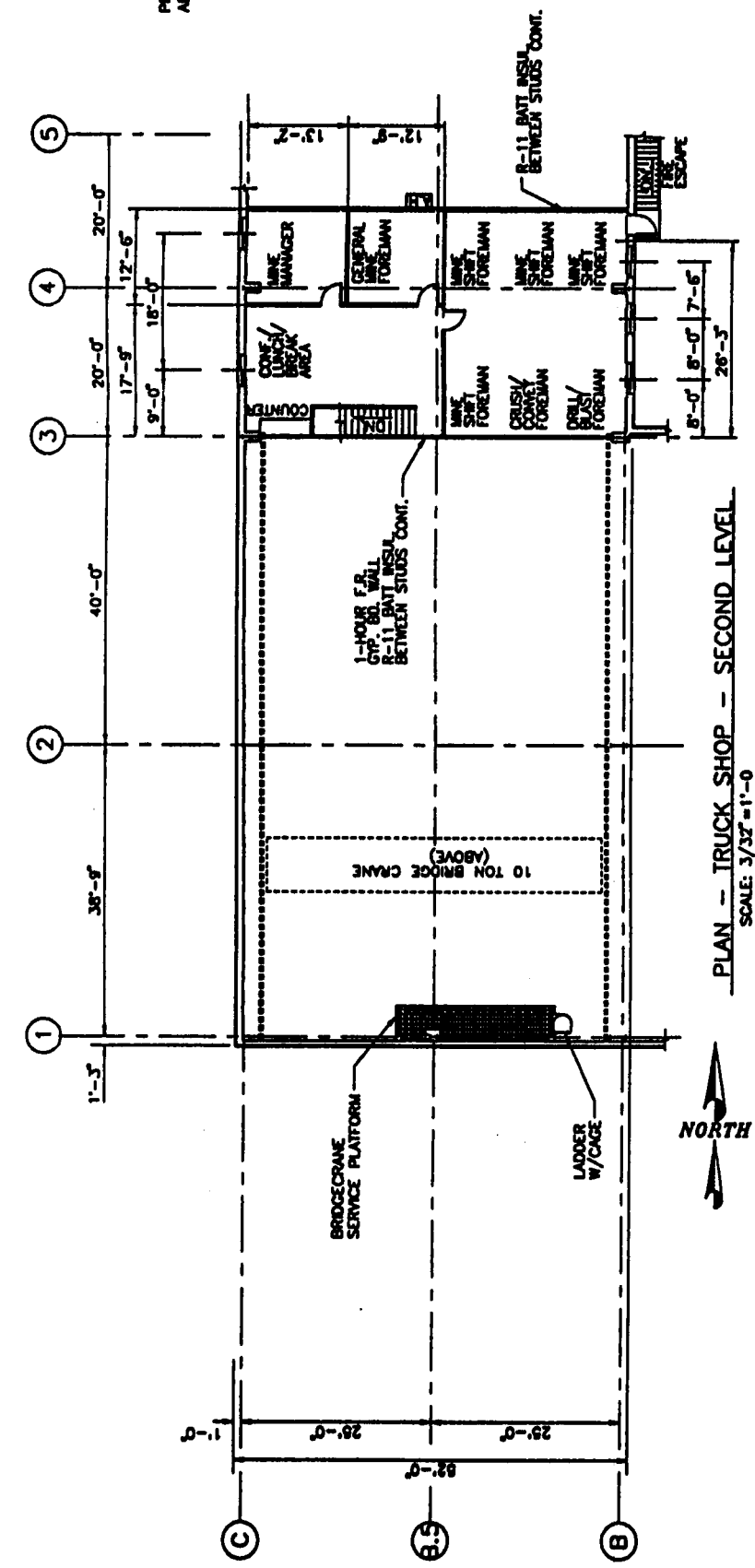
NOTE:
1. DIMENSIONS SHOWN FOR INTERIOR FRAMING ARE TO CENTER OF STUDS UNLESS OTHERWISE NOTED

DATE		BY	CHECK	DESCRIPTION OF REVISION
12/18/75		TJB		PRELIMINARY
DATE		BY	CHECK	DESCRIPTION OF REVISION
12/18/75		TJB		PRELIMINARY
ROBERTS & SCHAEFFER ENGINEERS AND CONTRACTORS CHICAGO-SALT LAKE CITY				
6326				
SUMMO U.S.A. CORPORATION				
ADMINISTRATION BUILDING PLAN LISBON VALLEY COPPER PROJECT SAN JUAN CO. UTAH				
DATE		BY	CHECK	DESCRIPTION OF REVISION
3/16-11-75				
DATE		BY	CHECK	DESCRIPTION OF REVISION
2/21/75				
6326-L003				
ACORNOTE				



NOTE:
1. DIMENSIONS SHOWN FOR INTERIOR FRAMING ARE TO CENTER OF STUDS UNLESS OTHERWISE NOTED

SUMMO U.S.A. CORPORATION 6326		ROBERTS & SCHAEFER ENGINEERS AND ARCHITECTS CHICAGO-SALT LAKE CITY		ADMINISTRATION BUILDING ELEVATIONS USBON VALLEY COPPER PROJECT SAN JUAN CO. UTAH		3/16-11-87 6326-L004	2/23/75
PRELIMINARY DATE: 12/17/75 BY: TRB		CHECK: [] DATE: [] BY: []		DESCRIPTION OF REVISION 1. [] 2. [] 3. []		1. DIMENSIONS SHOWN FOR INTERIOR FRAMING ARE TO CENTER OF STUDS UNLESS OTHERWISE NOTED	

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ROBERTS & SCHAMPER
DESIGNS AND CONTRACTORS
Trucking Company

11

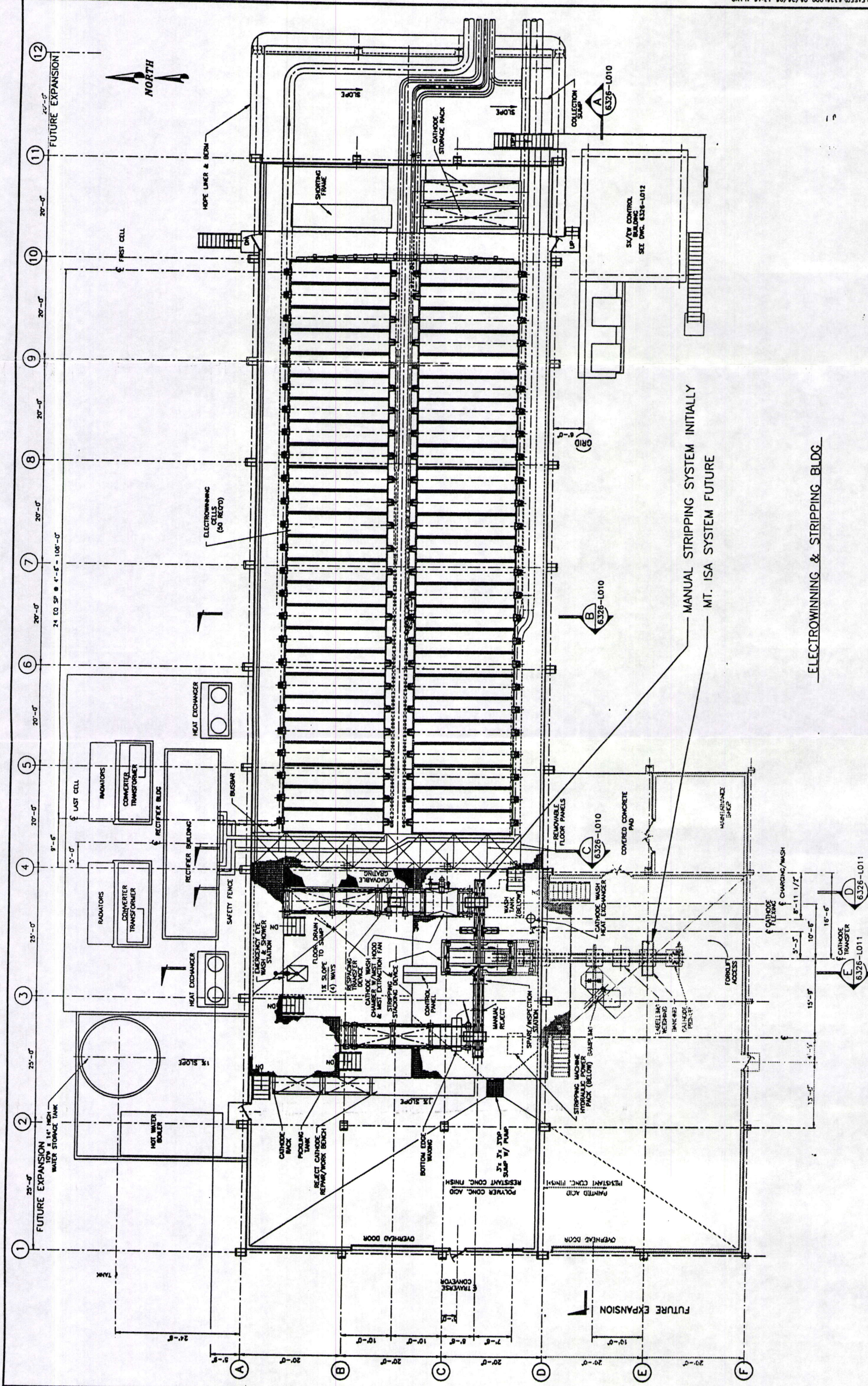
SUMMO U.S.A. CORPORATION

TRUCK SHOP & MINE WAREHOUSE
PLAN & SECTIONS
USBN VALLEY COPPER PROJECT
SAN JUAN CO. UTAH

10 1/2 3/1/83

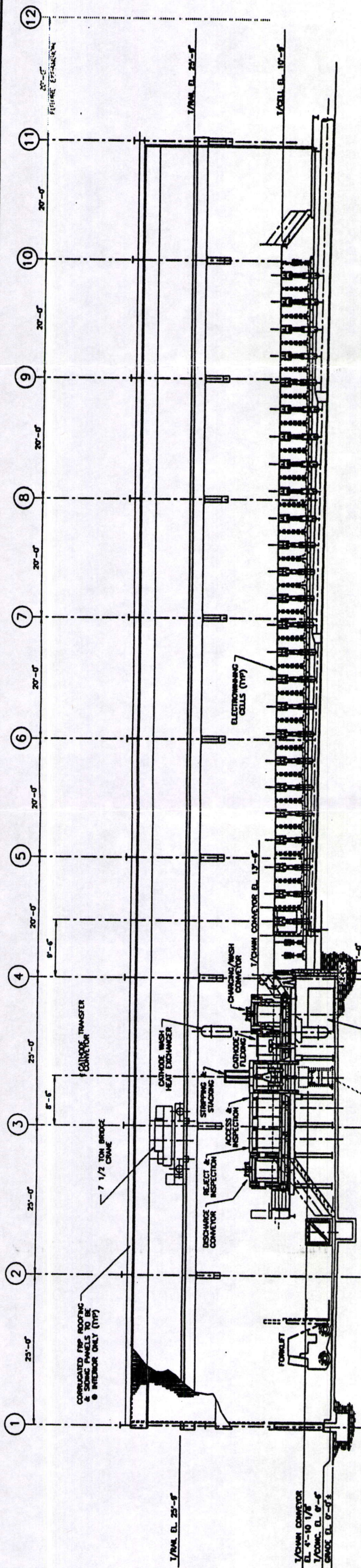
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6326-1007

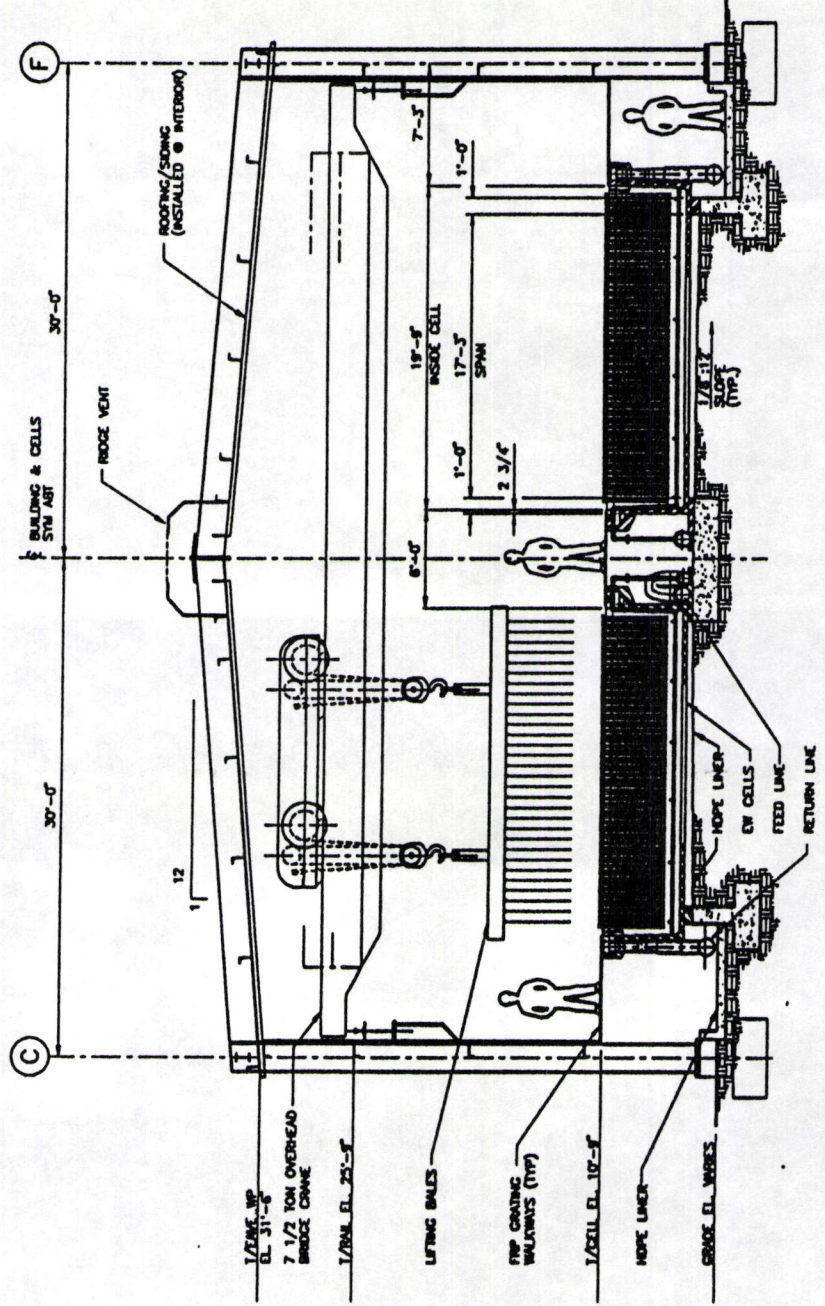


ELECTROWINNING & STRIPPING BLDG

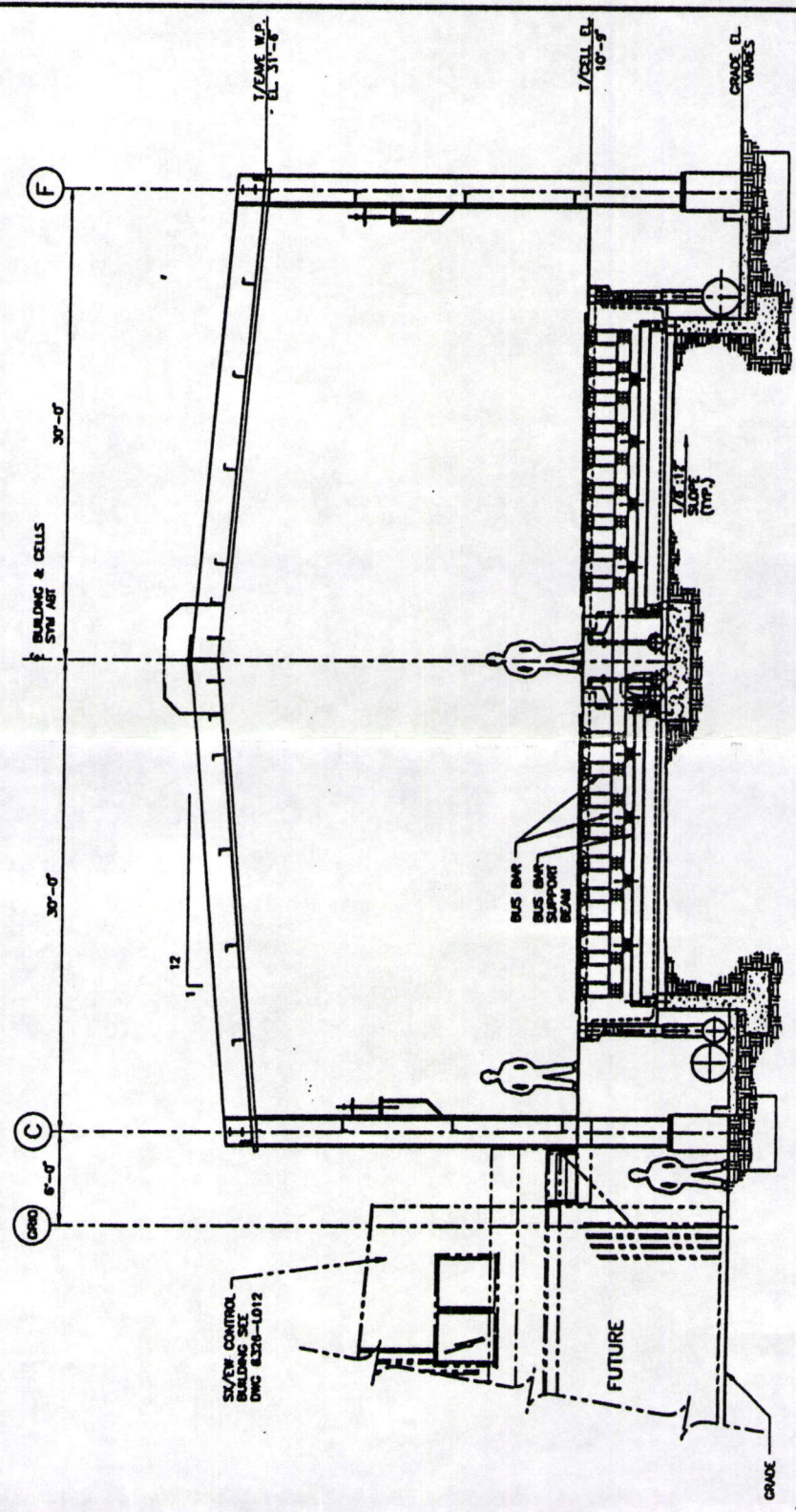
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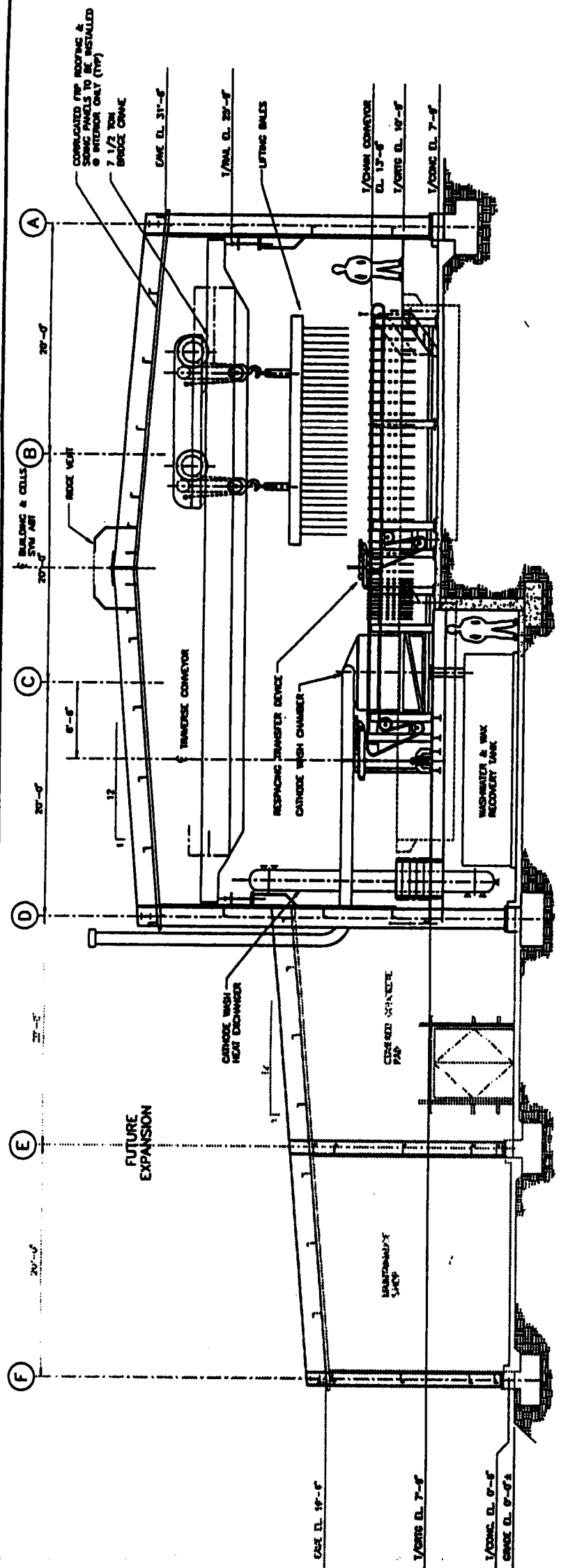


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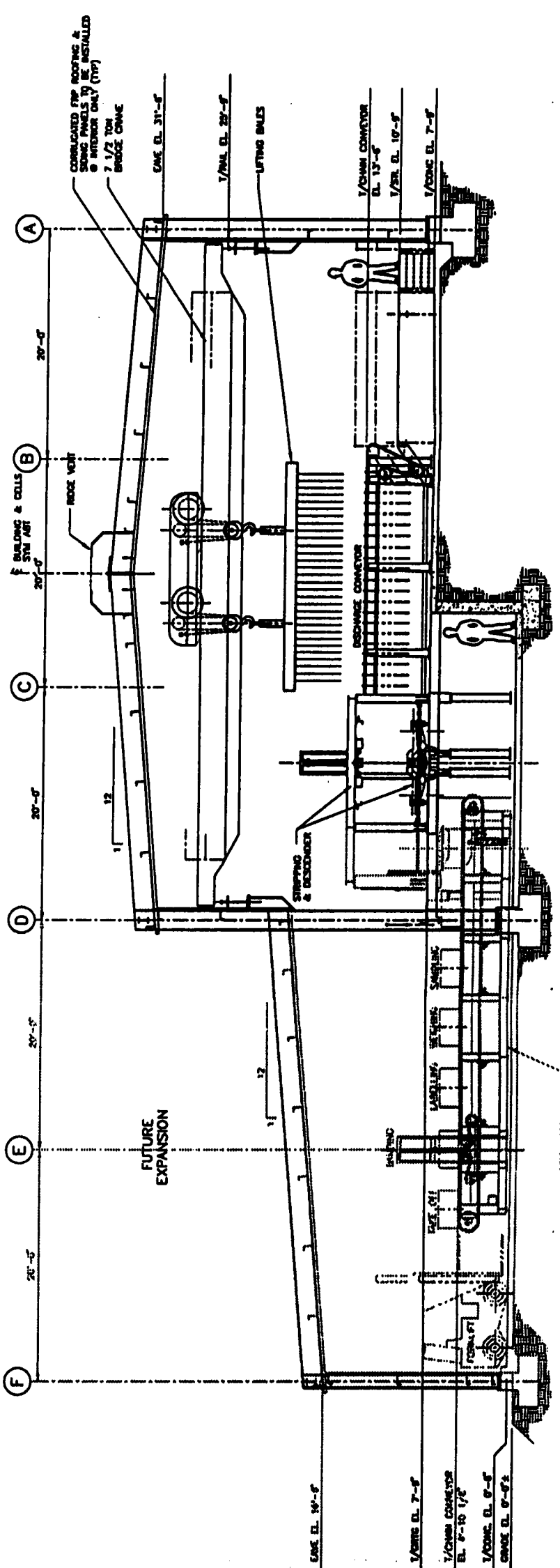


SECTION C
SCALE: 3/16"=1'-0" 6326-L009

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DRAWN BY: [] CHECKED BY: [] DATE: []		DESIGNED BY: [] DATE: []
PREPARED BY: [] DATE: []		REVIEWED BY: [] DATE: []
PROJECT LOCATION: []		
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PROJECT ENGINEER: []		
PROJECT ARCHITECT: []		
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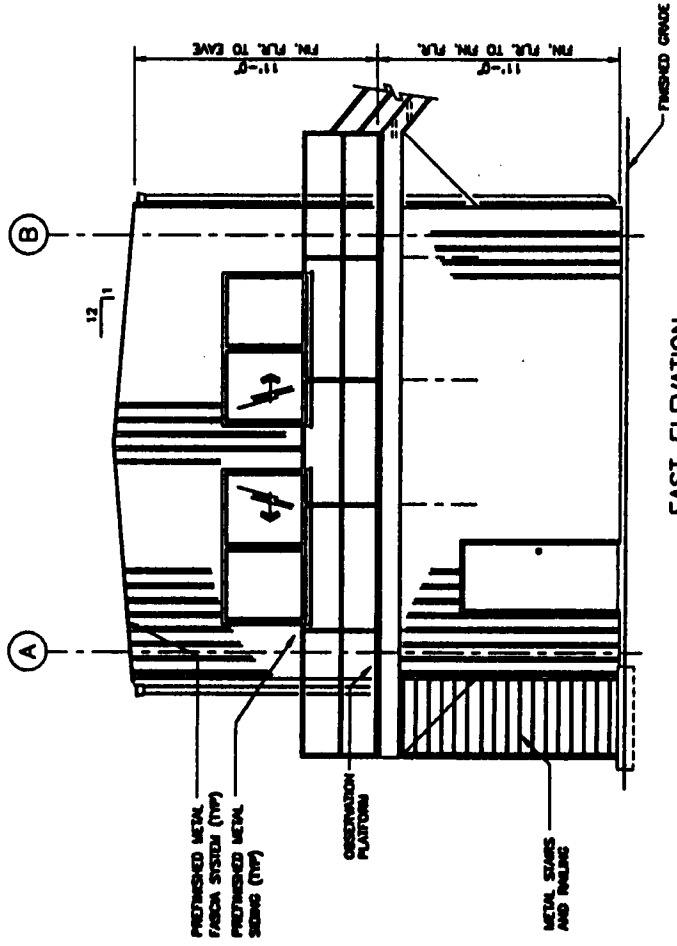


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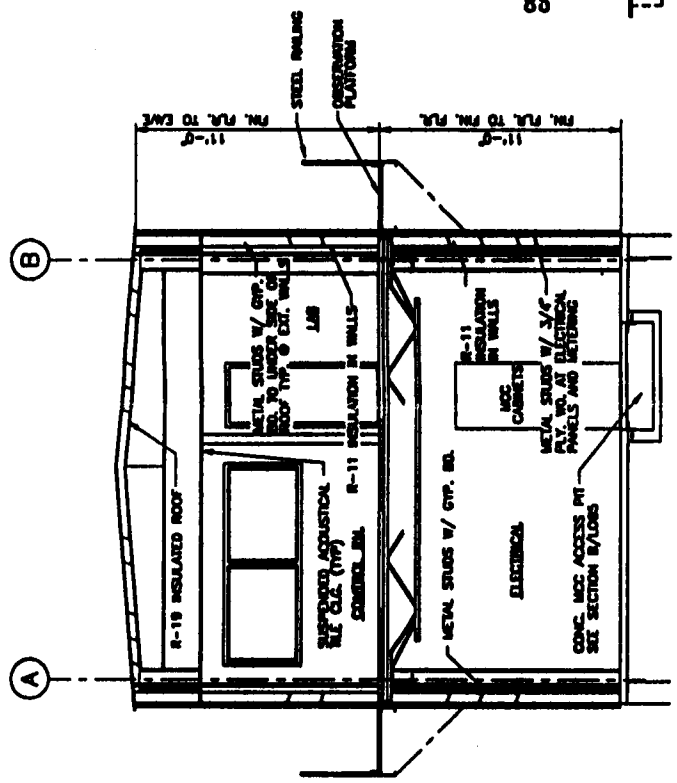


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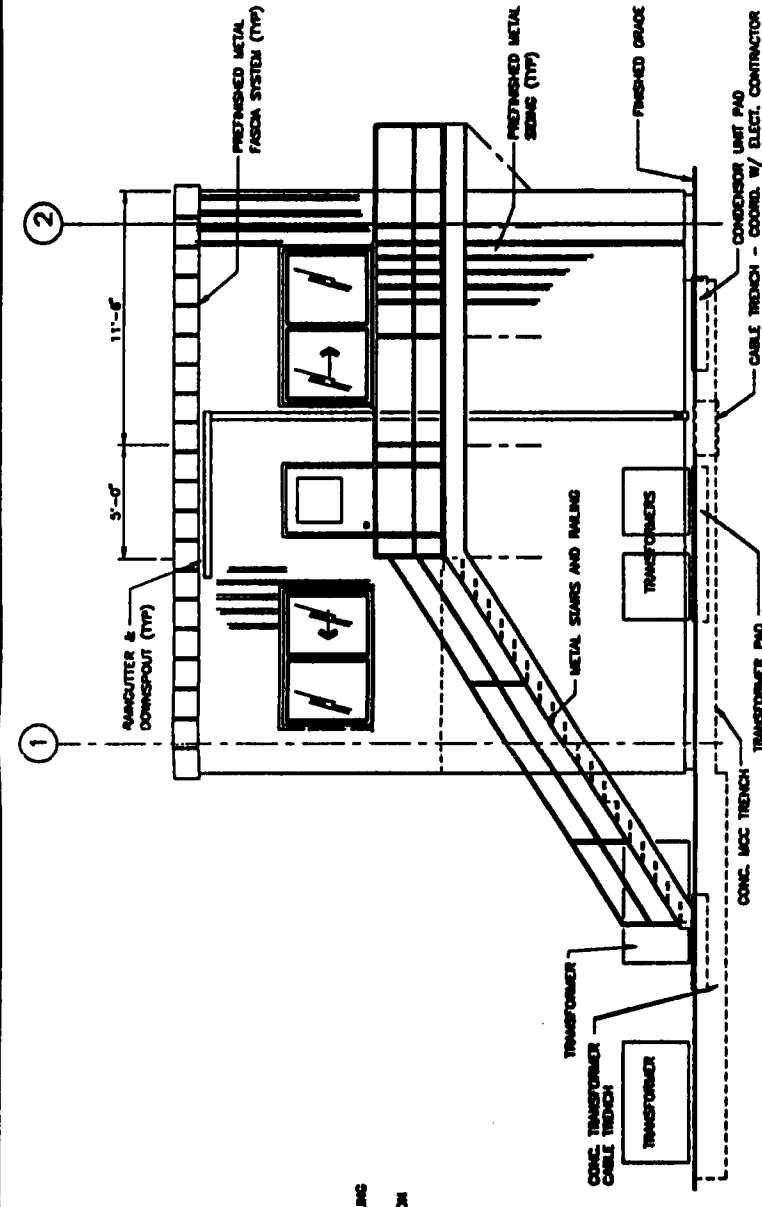
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PROJECT: ROBERTS & SCHUMBER DESIGN AND CONSTRUCTION 6326-SALT LAKE CITY		
1/4" DIA. DL 7'-0" 1/4" DIA. DL 9'-0" 1/4" DIA. DL 10'-0" 1/4" DIA. DL 11'-0" 1/4" DIA. DL 12'-0" 1/4" DIA. DL 13'-0" 1/4" DIA. DL 14'-0" 1/4" DIA. DL 15'-0" 1/4" DIA. DL 16'-0" 1/4" DIA. DL 17'-0" 1/4" DIA. DL 18'-0" 1/4" DIA. DL 19'-0" 1/4" DIA. DL 20'-0" 1/4" DIA. DL 21'-0" 1/4" DIA. DL 22'-0" 1/4" DIA. DL 23'-0" 1/4" DIA. DL 24'-0" 1/4" DIA. DL 25'-0" 1/4" DIA. DL 26'-0" 1/4" DIA. DL 27'-0" 1/4" DIA. DL 28'-0" 1/4" DIA. DL 29'-0" 1/4" DIA. DL 30'-0" 1/4" DIA. DL 31'-0" 1/4" DIA. DL 32'-0" 1/4" DIA. DL 33'-0" 1/4" DIA. DL 34'-0" 1/4" DIA. DL 35'-0" 1/4" DIA. DL 36'-0" 1/4" DIA. DL 37'-0" 1/4" DIA. DL 38'-0" 1/4" DIA. DL 39'-0" 1/4" DIA. DL 40'-0" 1/4" DIA. DL 41'-0" 1/4" DIA. DL 42'-0" 1/4" DIA. DL 43'-0" 1/4" DIA. DL 44'-0" 1/4" DIA. DL 45'-0" 1/4" DIA. DL 46'-0" 1/4" DIA. DL 47'-0" 1/4" DIA. DL 48'-0" 1/4" DIA. DL 49'-0" 1/4" DIA. DL 50'-0" 1/4" DIA. DL 51'-0" 1/4" DIA. DL 52'-0" 1/4" DIA. DL 53'-0" 1/4" DIA. DL 54'-0" 1/4" DIA. DL 55'-0" 1/4" DIA. DL 56'-0" 1/4" DIA. DL 57'-0" 1/4" DIA. DL 58'-0" 1/4" DIA. DL 59'-0" 1/4" DIA. DL 60'-0" 1/4" DIA. DL 61'-0" 1/4" DIA. DL 62'-0" 1/4" DIA. DL 63'-0" 1/4" DIA. DL 64'-0" 1/4" DIA. DL 65'-0" 1/4" DIA. DL 66'-0" 1/4" DIA. DL 67'-0" 1/4" DIA. DL 68'-0" 1/4" DIA. DL 69'-0" 1/4" DIA. DL 70'-0" 1/4" DIA. DL 71'-0" 1/4" DIA. DL 72'-0" 1/4" DIA. DL 73'-0" 1/4" DIA. DL 74'-0" 1/4" DIA. DL 75'-0" 1/4" DIA. DL 76'-0" 1/4" DIA. DL 77'-0" 1/4" DIA. DL 78'-0" 1/4" DIA. DL 79'-0" 1/4" DIA. DL 80'-0" 1/4" DIA. DL 81'-0" 1/4" DIA. DL 82'-0" 1/4" DIA. DL 83'-0" 1/4" DIA. DL 84'-0" 1/4" DIA. DL 85'-0" 1/4" DIA. DL 86'-0" 1/4" DIA. DL 87'-0" 1/4" DIA. DL 88'-0" 1/4" DIA. DL 89'-0" 1/4" DIA. DL 90'-0" 1/4" DIA. DL 91'-0" 1/4" DIA. DL 92'-0" 1/4" DIA. DL 93'-0" 1/4" DIA. DL 94'-0" 1/4" DIA. DL 95'-0" 1/4" DIA. DL 96'-0" 1/4" DIA. DL 97'-0" 1/4" DIA. DL 98'-0" 1/4" DIA. DL 99'-0" 1/4" DIA. DL 100'-0"		



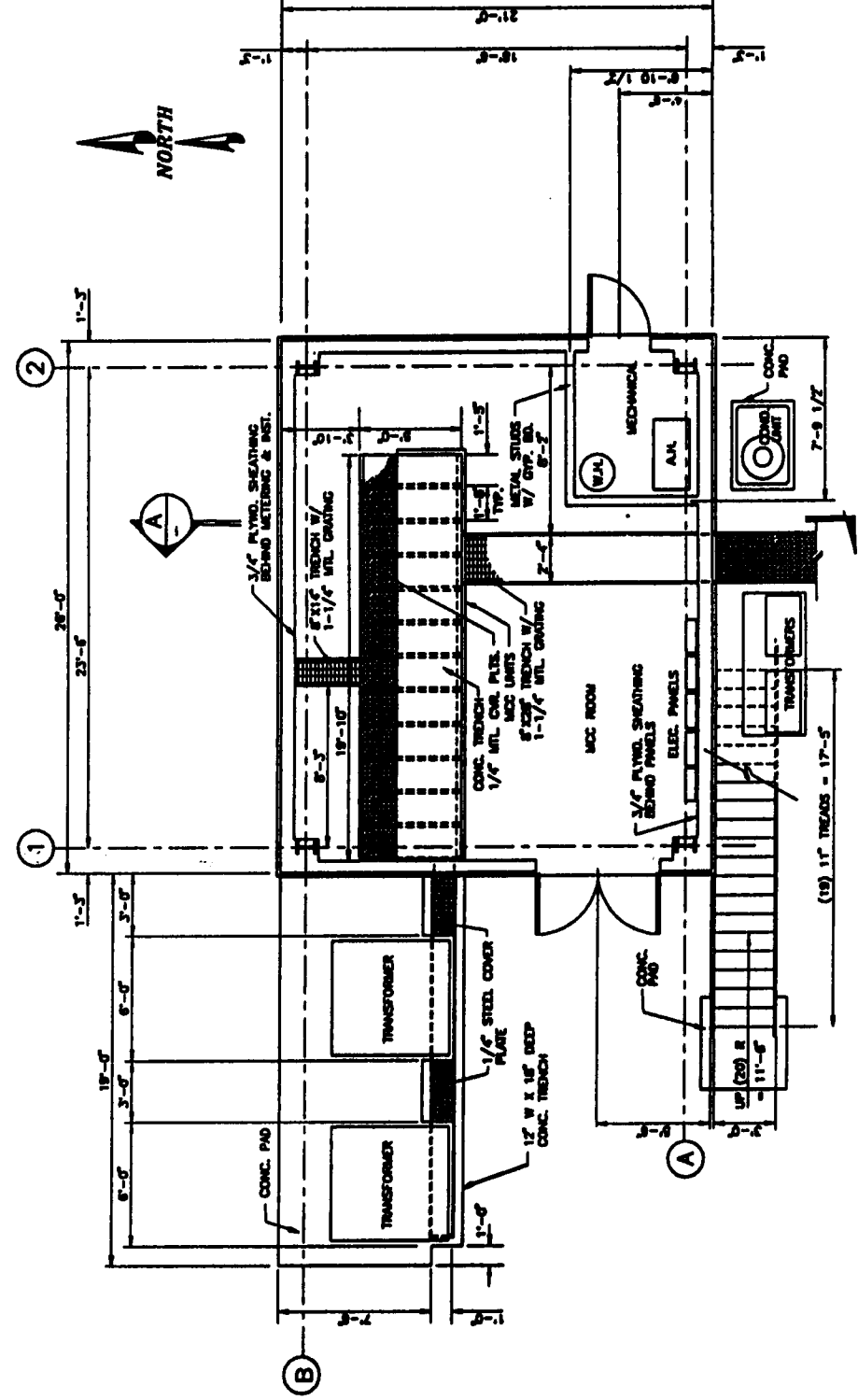
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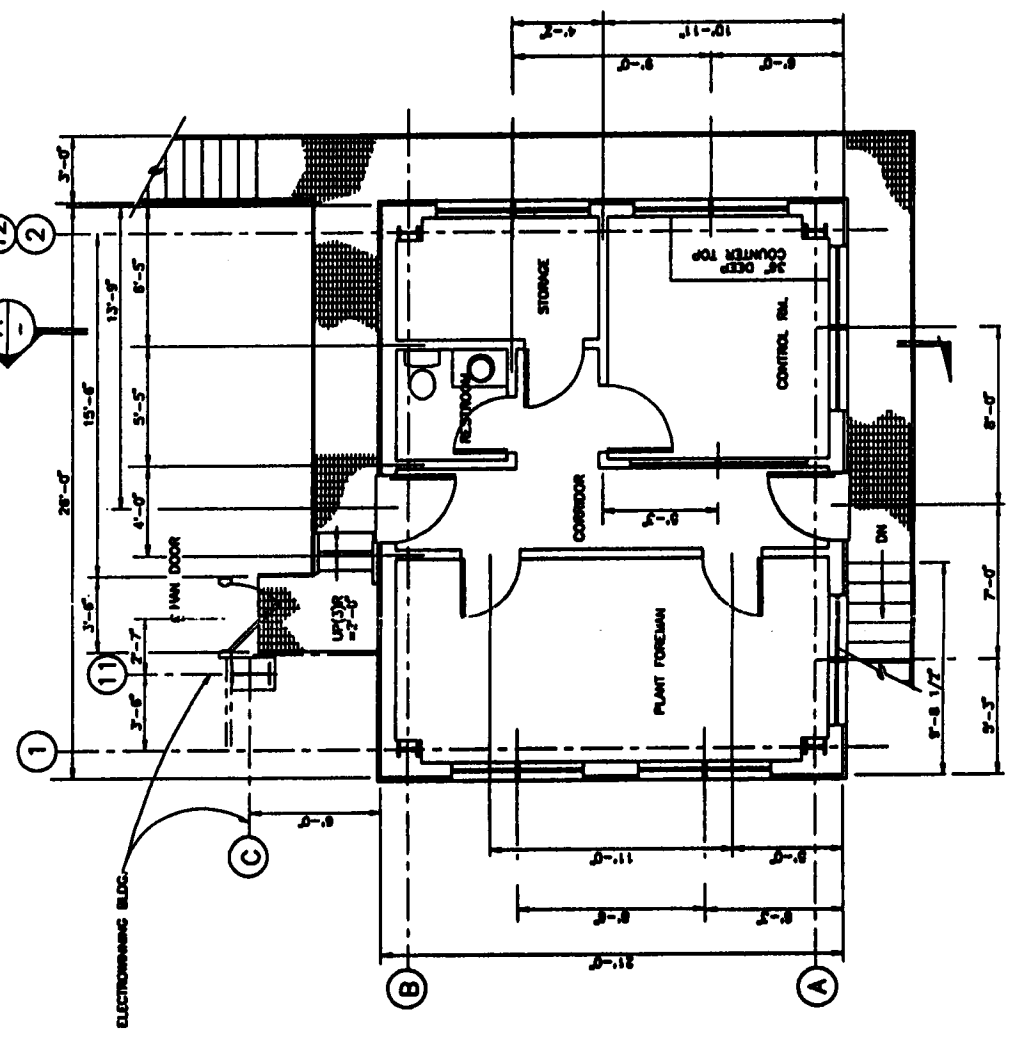
SECTION A-A



SOUTH ELEVATION

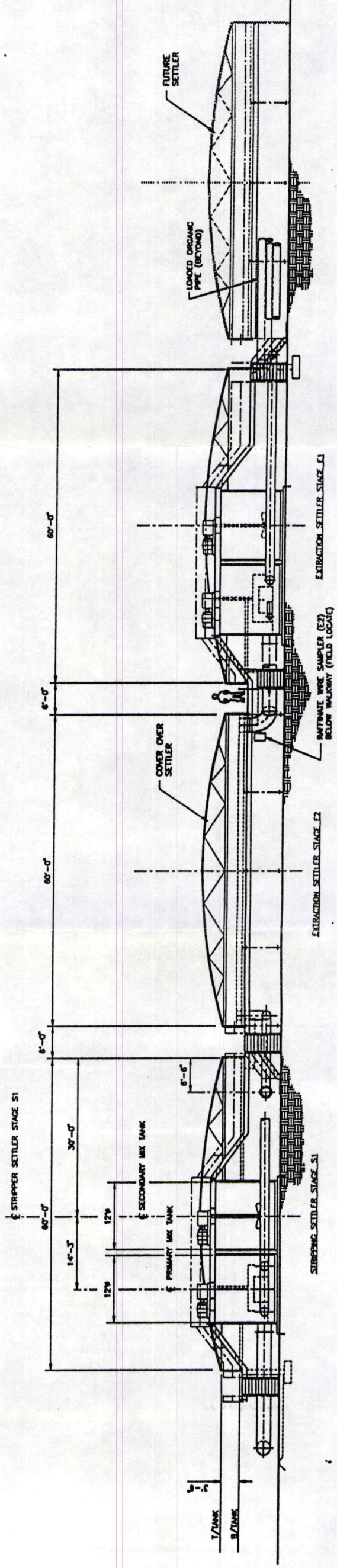
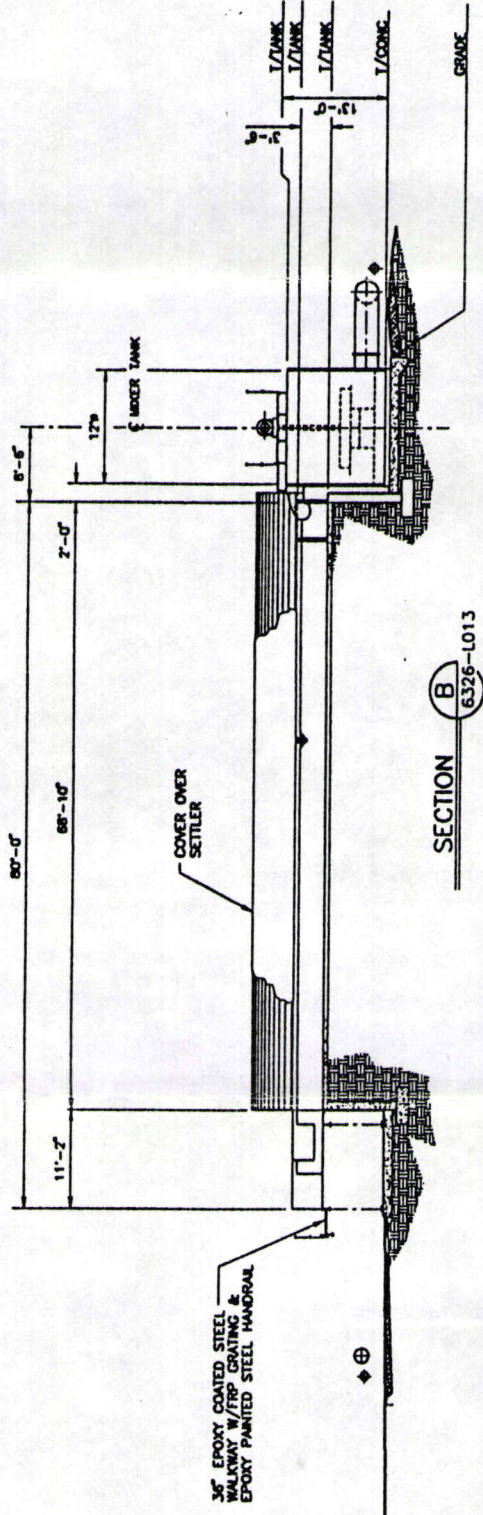
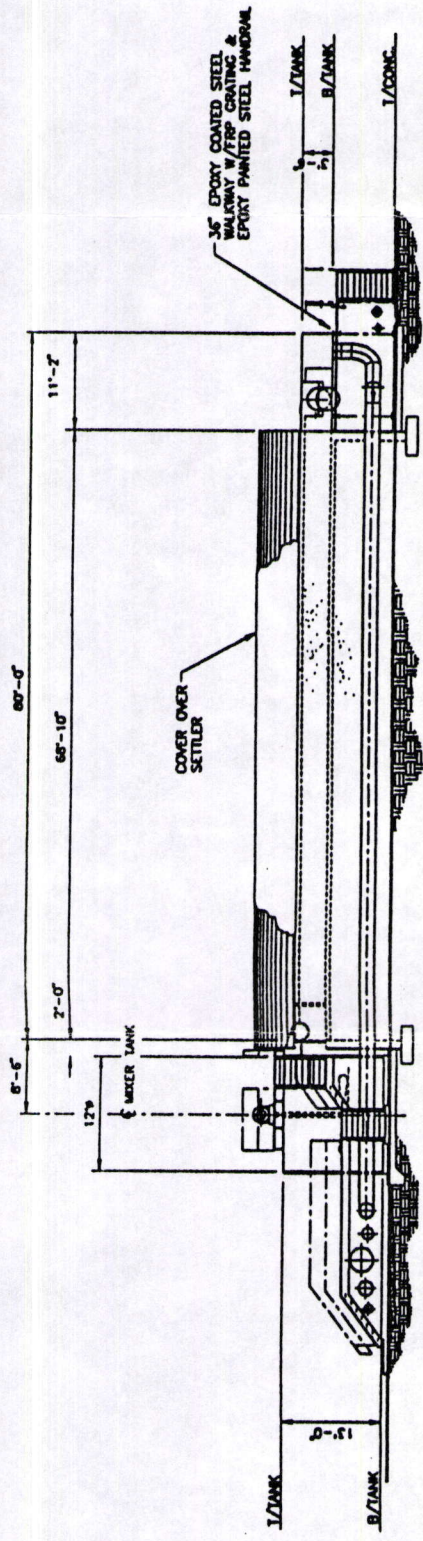


SX/EW CONTROL BUILDING - GRADE PLAN



SX/EW CONTROL BUILDING - UPPER PLAN

<div> <div> </div> <div> ROBERTS & SCHAEFER ENGINEERS ENGINEERS AND ARCHITECTS CHICAGO-SALT LAKE CITY </div> </div>				<div> <div> <div>SUMMO U.S.A. CORPORATION</div> <div>CONTROL BUILDING PLANS & SECTIONS AT SX / EW AREA LISBON VALLEY COPPER PROJECT SAN JUAN CO. UTAH</div> </div> <div> <div>6326</div> <div>6326-L012</div> </div> </div>			
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PRELIMINARY				DESCRIPTION OF REVISION			

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ROBERTS & SCHAEFER
ENGINEERS AND CONTRACTORS
CHICAGO-SALT LAKE CITY

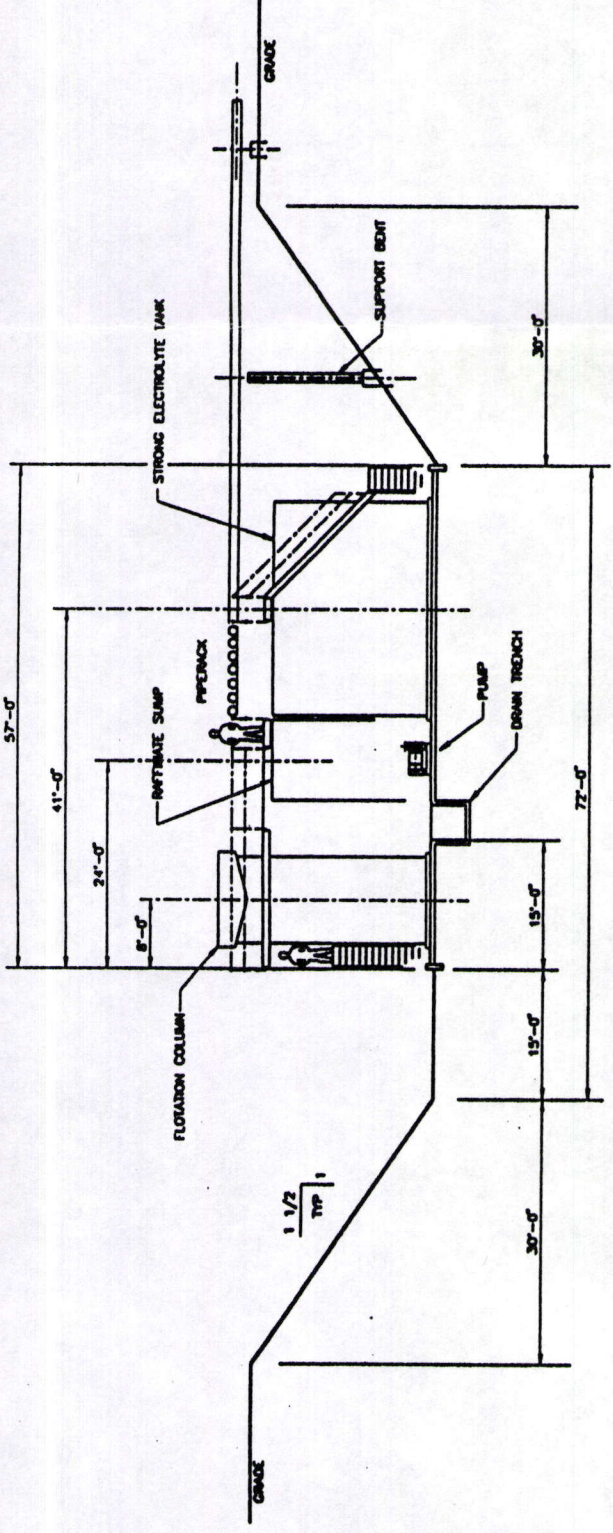
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SUMMO U.S.A. CORPORATION

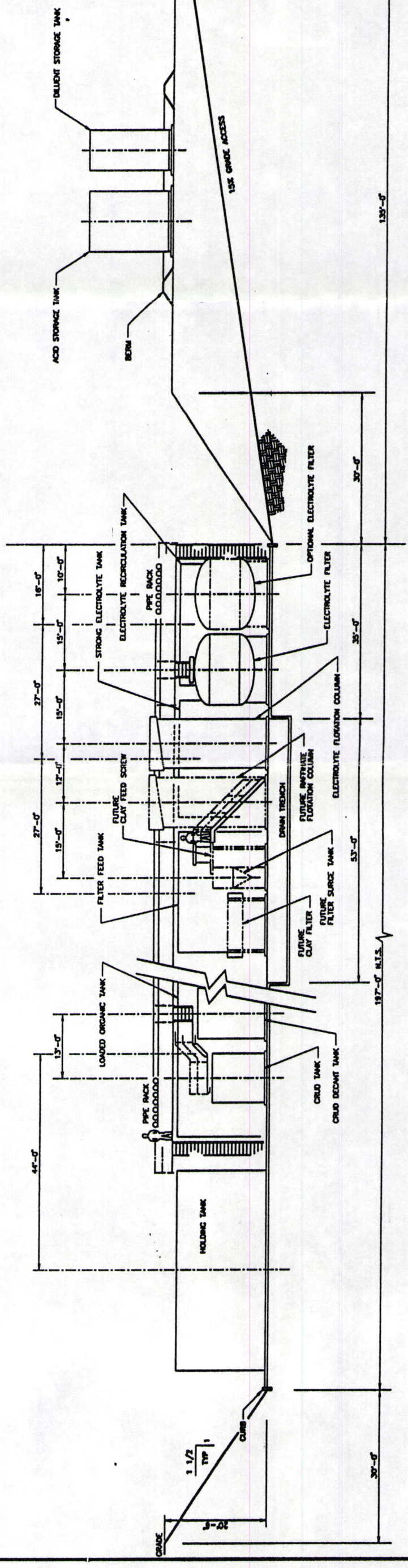
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SECTIONS
LISBON VALLEY COPPER PROJECT
SAN JUAN CO. UTAH

6326-L014

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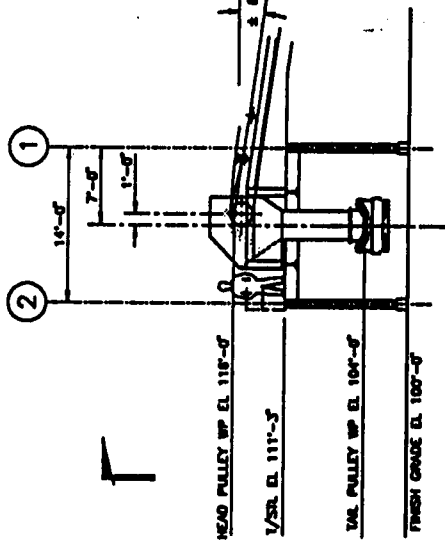


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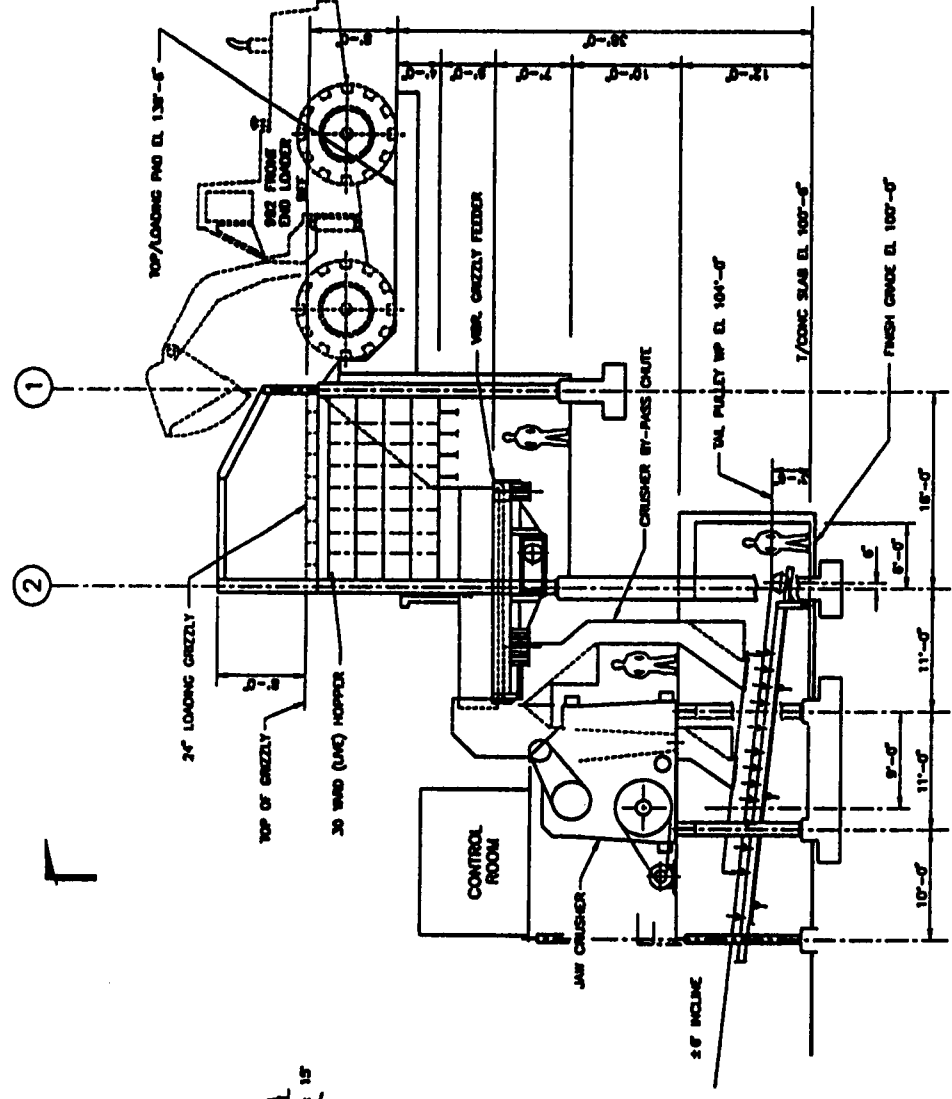



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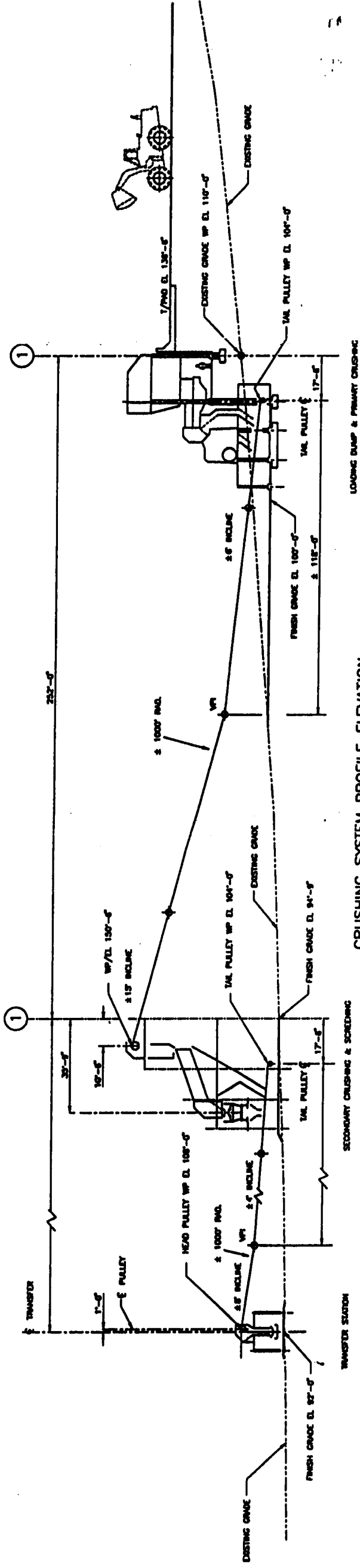
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SUMMO U.S.A. CORPORATION SECTION VIEWS USBON VALLEY COPPER PROJECT SAN JUAN CO. UTAH									
TANK FARM		DATE		2/28/75		PROJECT		6326-L016	
SCALE		1" = 10'				DRAWN		JLM	




6326-1018
C



6326-1018
A



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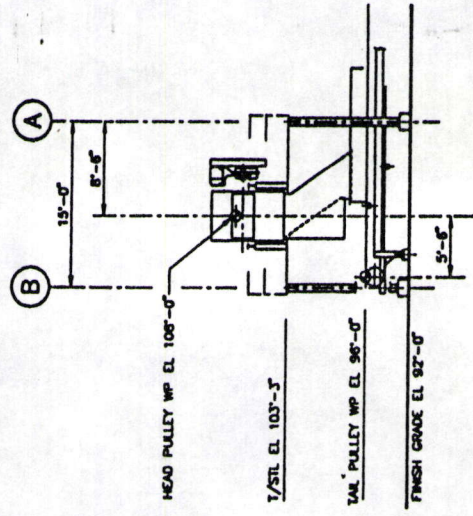
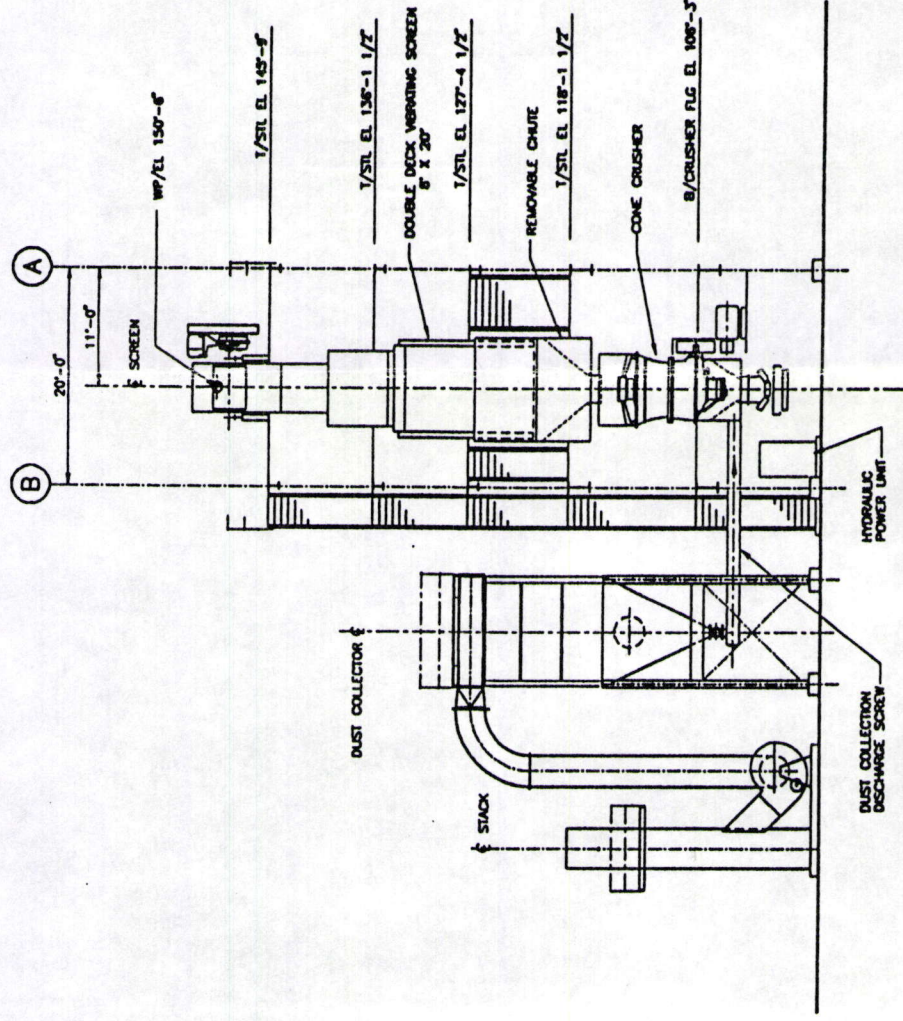
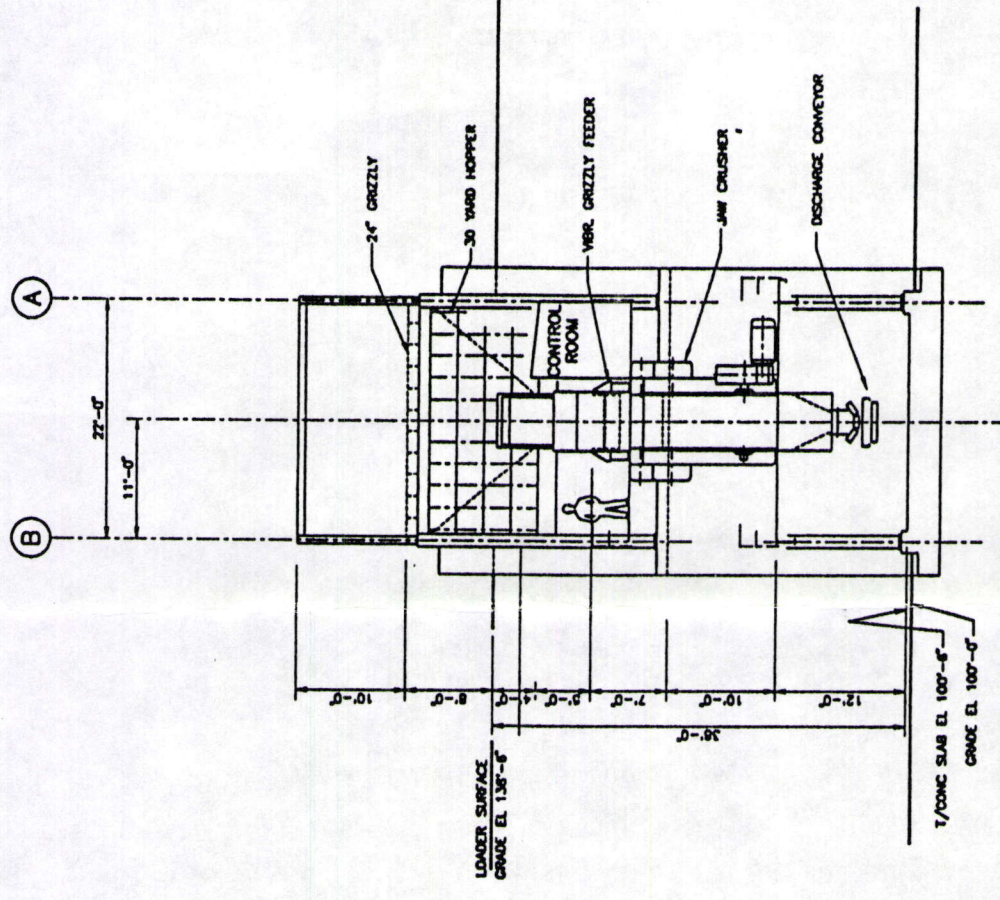
ROBERTTS & SCHAEFER
Company
DESIGNS AND CONTRACTS
CHICAGO-SALT LAKE CITY 6326

SUMMO U.S.A. CORPORATION

**PRIMARY & SECONDARY CRUSHING
PROFILE & ELEVATION VIEWS
LISBON VALLEY COPPER PROJECT
SAN JUAN CO. UTAH**

6326-L017

7/8 - 1-8	3/3/83
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SL	DATE	BY	CHECK	DESCRIPTION OF TELEVISION	SL	DATE	BY	CHECK	DESCRIPTION OF TELEVISION
						1/28/78	TIB		PRELIMINARY

ROBERTS & SCHAEFER
Company
 ENGINEERS AND CONTRACTORS
 CHICAGO-SALT LAKE CITY
 6786

SUMMO U.S.A. CORPORATION

**PRIMARY & SECONDARY CRUSHING
SECTION VIEWS
LIBSON VALLEY COPPER PROJECT
SAN JUAN CO. UTAH**

NAME OF	HLN	ADDRESS OF	CBM
ADDRESS OF		ADDRESS OF	RUB
ADDRESS OF			

1/8" = 1'-0" 3/4"

6/2/95

This page is a reference page used to track documents internally for the Division of Oil, Gas and Mining

Mine Permit Number M0370088 Mine Name Lisbon Valley
Operator Lisbon Valley Mining Co. LLC Date August 23, 1996
TO _____ FROM _____

☐ CONFIDENTIAL ☐ BOND CLOSURE ☐ LARGE MAPS ☒ EXPANDABLE
☐ MULTIPUL DOCUMENT TRACKING SHEET ☐ NEW APPROVED NOI
☐ AMENDMENT ☐ OTHER _____

Description YEAR-Record Number

☐ NOI ☒ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

Proposed Plan of Operations
Appendix A
2 Binders

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ TEXT/ 8 1/2 X 11 MAP PAGES ☐ 11 X 17 MAPS ☐ LARGE MAP

COMMENTS: _____

CC: _____